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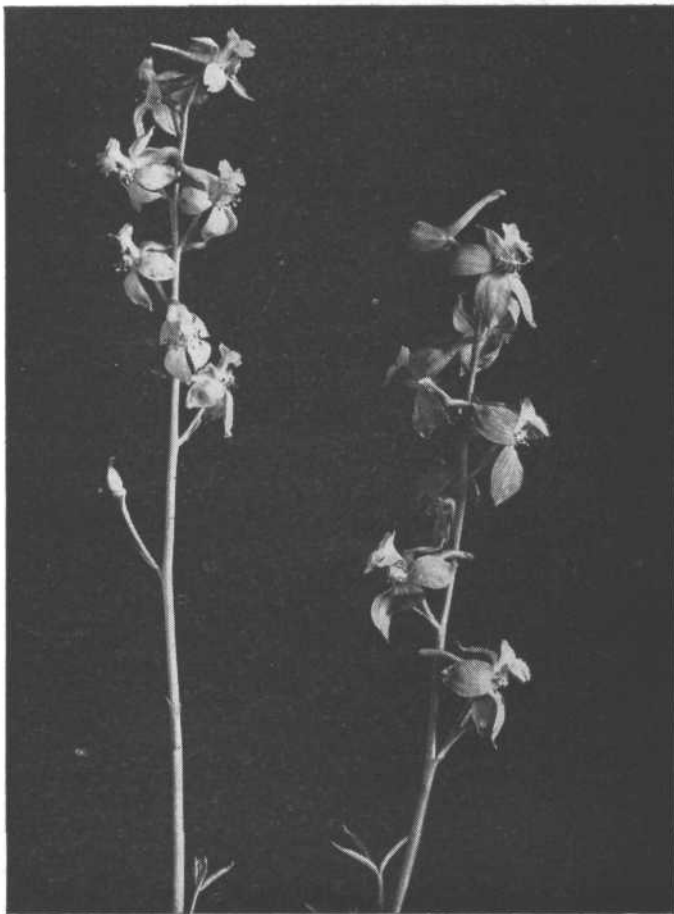
Desert

M A G A Z I N E



SEPTEMBER, 1949

35 CENTS



Larkspur of the species *Delphinium parishii*.
Photo by Mary Beal.

Dolphin-Flower or Cavalier's Spur

By MARY BEAL

WE know it as Larkspur but to the ancient Greeks it was dolphin-like and the generic name, *Delphinium*, has come down to us from an early Greek herbalist. The Spanish-Californians, with their usual aptitude for euphonious names, called it *Espuelo del Caballero* which we interpret as Cavalier's Spur. Not many flowers are more intriguing in structure and color.

Members of the large, handsome Buttercup (or Crow-foot) family, they claim as close kin the Peony, Anemone, Columbine, Monkshood and Ranunculus, all beloved by home gardeners and also well represented among the wild flowers. They vary so much in general appearance that it is a surprise to most amateur botanists to find them closely related.

With all their charm and beauty, many of the Larkspurs have a bad name, especially among cattle raisers, because they contain toxic alkaloids which cause heavy losses to cattle on the ranges where those species flourish. Stockmen are advised to regard all Larkspur species with suspicion.

Our native Larkspurs are widespread. You'll find them from desert sands to the higher mountain elevations, always making a fine showing with their colorful spires of

exquisitely fashioned blossoms. They are all perennial, the leaves palmately divided into cleft or toothed segments. The flowers are irregular and intricate in design, the 5 sepals markedly larger than the petals, the upper one lengthened into a conspicuous hollow spur at the base, outstretched backward. The 4 petals are very small, the 2 upper ones with spurs concealed within the calyx-spur, the 2 curved lower ones partly covering the pistils and stamens.

Delphinine and other alkaloids extracted from *Delphinium* species have medicinal value so their noxious qualities are not exclusively deadly.

The common species of desert areas is Parish's Larkspur.

Delphinium parishii

This species honors Samuel B. Parish, whose extensive mountain and desert botanizing has enriched our knowledge of their flora beyond measure. It is rather stout-stemmed, with smooth hairless herbage, the leaves mostly basal, an inch or two broad, the palmate lobes deeply cleft into narrow segments. The slender racemes stand a foot or two high, their 7 to 18 blossoms more or less loosely strung along the upper portion, like fairy wands bejeweled with posies.

These lovely spires often rise above the low shrubs, displaying to good advantage the iridescent glints of their coloring. The individual flowers measure from one-half to nearly an inch across, the sepals a delicate cerulean or lilac-blue, the shade varying as much as the blue of the sky, often marked on the back with a green spot at the tip. The two upper petals are white or creamy, the lower ones blue and slightly hairy on the back. The numerous stamens are dilated and flattened on the lower half, closely encircling the ovary, which becomes a many-seeded pod, each tiny seed enveloped in a loose white papery coat.

The Parish Larkspurs do not assemble by the myriads to spread great sweeps of color over vast spaces but in groups or singly, here and there they enliven the landscape with colorful splashes of charm and grace. You'll find them far and wide, from the western Colorado desert, through the Mojave desert to Inyo county, southern Nevada and southern Utah, and Arizona, on sandy mesas, washes and hillsides, from low elevations (500 feet) to mountain ridges of 7500 feet.

A few other Larkspurs venture into the desert from bordering mountain ranges, among them Parry's Larkspur.

Delphinium parryi

Resembling Parish's Larkspur but taller, up to two and a half feet, the racemes up to a foot in length, each flower about an inch and a half across. The sepals are deep or bright violet-blue or purplish, thinly hairy on the back. The tall spires are often crowded with the vivid blossoms and would take front rank in a beauty contest. It is a common Southern California species of sandy open ground, mesas, and dry hillsides, ranging into the desert areas of eastern San Diego county and on to the edge of the Colorado desert. Blooms from April to June.

Delphinium scaposum

A foot or two tall, the bronzy-green leaves mostly clustered at the base, the segments obovate. The raceme is composed of 5 to 12 large flowers almost an inch across, the sepals usually a deep royal-blue, the two upper petals whitish, the lower ones dark blue or purple. In the Grand Canyon and adjacent regions the flowers are a lighter blue with touches of violet, brightly iridescent. Dry plains, mesas, and rocky hillsides are favored situations for this delightful species, generally between 4000 and 7000 feet, in Arizona, New Mexico and southern Nevada, to be looked for from March to May.

DESERT CALENDAR

- Sept. 2—Indian celebration and dances at Acoma pueblo, Indian "City in the Sky," 14 miles off U.S. 84 in upper northern New Mexico.
- Sept. 2-5—Santa Fe's 237th Annual Fiesta, Santa Fe, New Mexico.
- Sept. 2-3-4-5—Nevada State Fair and Rodeo, Fallon, Nevada.
- Sept. 3-4—Third Annual Gem and Mineral Show of the Junior Rockhounds of Prescott, Arizona; Arizona Power corporation showroom.
- Sept. 3-4-5—Annual Homecoming and Labor Day Celebration, Bishop, California.
- Sept. 3-4-5—Nevada Rodeo, "The West at Its Best," Winnemucca, Nevada.
- Sept. 5—Labor Day Rodeo, Williams, Arizona.
- Sept. 5—Rodeo, Labor Day, Benson, Arizona.
- Sept. 8-9—Second annual Indian Fair, San Carlos, Arizona.
- Sept. 8-9-10-11—Southwest New Mexico State Fair, Silver City, New Mexico.
- Sept. 8-9-10-11—Antelope Valley Fair and Alfalfa festival, Lancaster, California.
- Sept. 9-10—Annual Peach Days celebration, Brigham City, Utah.
- Sept. 9-10—Tooele County Fair, Tooele, Utah.
- Sept. 15—Indian races and dances, Jicarilla Apache reservation, New Mexico.
- Sept. 16-17-18—Yavapai County Fair, Prescott, Arizona.
- Sept. 18-25—Utah State Fair, Salt Lake City, Utah.
- Sept. 19—Indian Fiesta and dances, Laguna pueblo on U.S. 66, 48 miles west of Albuquerque, New Mexico.
- Sept. 23-24-25—Enlarged Navajo County Fair, 17th annual, and Jaycees Rodeo. Entertainment, concessions, exhibits, rodeo program. Holbrook, Arizona.
- Sept. 24-25—Third Annual Rodeo, Barstow Rodeo and Riding club, Barstow, California.
- Sept. 24-25—Calico Cavalcade, a historical pageant to be presented in Mule canyon (a Centennial celebration). Same date as Barstow Rodeo, at Barstow, California.
- Sept. 25—New Mexico State Fair opens for 8-day run, Albuquerque, New Mexico.
- Sept. 29-30—Indian rituals and dances at Taos pueblo on U.S. 64, New Mexico.



Volume 12

SEPTEMBER, 1949

Number 11

COVER	MONUMENT VALLEY, by Hubert A. Lowman, South Gate, California	
BOTANY	Dolphin-Flower or Cavalier's Spur By MARY BEAL	2
CALENDAR	September events on the desert	3
LETTERS	Comment of Desert readers	4
INDUSTRY	Stone-Splitters of Ashfork By RANDALL HENDERSON	5
CLOSE-UPS	About those who write for Desert	8
FIELD TRIP	Gems on the Devil's Highway By HAROLD O. WEIGHT	9
DESERT QUIZ	Test your desert knowledge	14
URANIUM	Grubstake That Paid Off By MORGAN MONROE	15
PERSONALITY	He Discovered an Ancient Wonderland By CARMA LEE SMITHSON	20
MINING	Current news of desert mines	23
POETRY	Vaquero, and other poems	24
PHOTOGRAPHY	Contest winners in July	25
ARCHEOLOGY	They Left Their Story in the Desert Sands By A. La VIELLE LAWBAUGH	26
PERSONALITY	He Died on His River	30
RECREATION	We Look for Pretty Rocks By PAUL MERCER	31
HUMOR	Hard Rock Shorty of Death Valley	32
NEWS	From here and there on the desert	33
CONTEST	Prizes to photographers, monthly contest	38
HOBBY	Gems and minerals	39
LAPIDARY	Amateur Gem Cutter, by LELANDE QUICK	44
BOOKS	Reviews of Southwest Literature	45
COMMENT	Just Between You and Me, By the Editor	46

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LETTERS...

Maybe It Has Started . . .

Lake Arrowhead, California

Desert:

You may expect many comments on your "Just Between You and Me" in August issue of *Desert Magazine*.

Just between you and me and the whole wide world, may I say the mere fact that thousands of people visit the Arizona Meteor Crater is proof enough of its importance and the world-wide interest it attracts.

It should be taken over as a National Monument. Let us hope someone starts the ball rolling.

CAPT. H. O. TOENJES

• • •

A Good Gamble . . .

Mt. Bullion, California

Desert:

Enclosed money order for \$3.50 is for renewal of my subscription to *Desert Magazine*.

Owing to my age—77 in December—I do not feel like taking a chance on more than one year at a time.

Best wishes to you and *Desert's* staff.

J. W. FERRIS

With your kindly attitude and sense of humor, we'll gamble you'll be a member of Desert's family for a long, long time.—R.H.

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They Know Their Icebergs — in Iceland . . .

Keflavik Airport, Iceland

Desert:

I have just read the May copy of *Desert Magazine*, loaned to me by one of your subscribers here, John L. Neill Jr., and I wish to refer to David Miller's interesting story "Salt Water Trail on the Desert," in which he writes of a collision with an iceberg.

If you will refer to the dictionary I believe you will find that an iceberg is like a cube of ice in a glass of tea, with most of the ice submerged. The ice encountered in Salt Lake hardly could be referred to as an iceberg; it more properly is an ice floe, which is a tabular mass.

Incidentally, an American air-sea rescue pilot here, Henry Holt, when in our capital city of Reykjavik, was showing a doctor a 1948 issue of *Desert*, and the doctor, a friend of mine, found in it a poem written by my mother. So, even here in Iceland, 6000 miles from your publishing office, one finds *Desert Magazine*. What a small world we are living in.

WALDO RUESS

Auto Club Protests . . .

Los Angeles, California

Desert:

May I protest, most strongly, against the information appearing on page 38 of *Desert Magazine* for August 1949 wherein you have quoted from the Randsburg Times-Herald a statement that the new Trona-Death Valley road is an oil surfaced highway. Such a statement is not correct, as I know very well, having completely mapped this road for the Club on Saturday, July 2nd. A copy of my report is enclosed for your guidance as it is very likely that you, like ourselves, will have some repercussions to the item.

The 5.4 miles of unsealed road has already been surveyed for reconstruction, as I noted grade stakes in place and we have already received a notice from the highway department that they are calling for bids on this project. Until such time, however, as that work has been completed one cannot truthfully say it is all oil from Trona to Death Valley via Panamint Valley.

In closing I might say the new oil from Water canyon, at the north foot of the Slate range, to its terminus 37.5 miles out of Trona, is of a very light penetration and some breakup is already taking place.

ARTHUR C. DAVIS, *Asst. Mgr.*,
AUTOMOBILE CLUB OF SOUTHERN
CALIFORNIA

• • •

This One Is Laudatory . . .

Salem, Oregon

Desert:

I enclose list of our 1949 membership so you may send sample copies of *Desert Magazine* to those who are not now subscribers.

Personally, I have subscribed to *Desert* for several years, we always are eager for it—it takes us on trips through country we wish we could visit.

I can't imagine not receiving the *Desert Magazine*, it has become a Classic in our home.

MRS. C. O. BOWERS, *Secretary*
SALEM GEOLOGICAL SOCIETY

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A Good Question . . .

Portland, Oregon

Desert:

Reference to your August "Here and There" copy from the Vernal Express:

Did the young husband lose his arm from gangrene as result of the tourniquet not having been disturbed for six hours?

JEAN PAUL MESTREZAT

Does This Settle It?

Del Mar, California

Desert:

In "Ghost Town" in your August issue, Nell Murbarger leaves the impression that the exact location where the "great diamond hoax" of the seventies was staged, was never definitely revealed.

In his book "The Great Diamond Hoax," Asbury Harpending who was an associate of Ralston, and one of the San Francisco business men who were taken in by the swindlers, describes his trip to the "diamond field," guided by Arnold and Slack the "discoverers."

"We left the Union Pacific railroad near Rawlins Springs," wrote Harpending. This is undoubtedly Rawlins, Wyoming, in the central-southern part of the state. The party was led on an erratic four-day journey that according to Harpending ended only some 25 miles north of the line of the railroad. Arnold and Slack pointed out several places where they had "found" precious stones and told the party to dig. They found diamonds, rubies, emeralds, sapphires. "Why a few pearls weren't thrown in for good luck I have never yet been able to tell. Probably it was an oversight," Harpending commented wryly.

In the fall of 1872, Clarence King of the U.S. Geological Survey, visited the "diamond field," and exposed the fact that it was salted. There is no doubt at all that the location was in southern Wyoming.

WILLARD S. WOOD

• • •

A Call for Help . . .

Los Banos, California

Desert:

Have you any information available about the type of wood-finishing known as "desert finish"? When properly done the wood acquires the pale silver gray typical of wood bleached by the desert sun. This is not to be confused with the popular antiqued gray effect secured by wiping on and off a tinted resin filler. The desert finish is done, I believe, with some fairly common acid which bleaches the grain of the wood leaving a silvered rather than a dull gray effect.

At some time past I have read an article on the treatment of woods to get this desert finish but as I was not interested at the time, did not save it. Now I want to try finishing panelling and furniture in this style but can find no one who ever heard of anything but the so-called antiqued gray.

If you do not have this information, can you suggest someone to whom I can write who might know something about it? I will certainly appreciate any help you can give me.

MRS. ELIZABETH WHITE



The stone-splitter looks for a faint line marking the cleavage plane in the slab, then drives in his wedge-shaped chisel, and a new slab of flagstone is broken loose from the mass.



When a truck pulls in for a load the splitters all drop their tools and pitch in for the loading job. The flagstone industry is comparatively new and power loading equipment has not yet been installed.

Stone-Splitters of Ashfork...

Ashfork, Arizona, was just a railroad and cow town until some one discovered there was a market for the hard flat slabs of stone scattered over the hills in that area. And now the flag and building stone which comes from 50 quarries in the vicinity of this little community near the rim of the Grand Canyon is shipped all over the United States — more than 1000 tons of it every month. Flagstone has become one of the main industries of the town. And here is the story of how it is quarried, and processed for building purposes.

By RANDALL HENDERSON

7 TWO HUNDRED MILLION YEARS AGO — on the great plateau we now call Arizona — there was a terrific sandstorm. In fact there were many of them. They continued, perhaps, for thousands of years.

Eventually the sand-blowing cycle came to an end, but not until a layer 300 feet in thickness, more or less, of wind-blown sand had been deposited on the plateau.

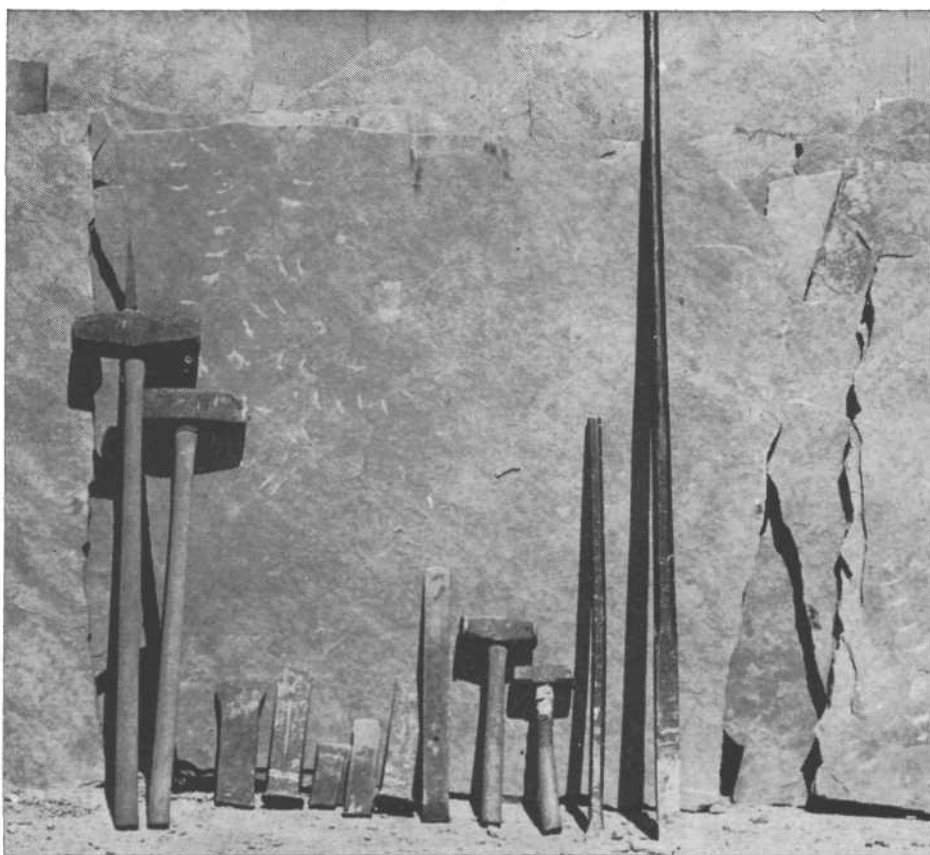
That date — 200 million years — of course is just a rough estimate. It may have been 50 million more — or less. I borrowed the figures from geologists who know much more about such things than I do.

The geologists give us some other

interesting sidelights on these sand deposits. The sand was mostly silica — up to 94 percent. Silica is very hard. Today it is widely used making glass.

Eventually these sand dunes were submerged in the bottom of an inland sea, and 550 feet of another sediment now called Kaibab limestone was deposited on top of it. The moisture plus the weight cemented the silica sand particles together into one of the hardest known forms of sandstone.

This sand is known as Eolian deposit. It was laid down during the Permian age in the latter Paleozoic period. Today it is known as Coconino sandstone.



Here are the chief tools in a flagstone quarry—wedge-bars, stone chisels of various thickness, and an assortment of hammers.

But that is all technical information which you and I do not have to remember. The thing that interests us is that during the intervening millions of years much of the overlying Kaibab limestone has eroded away, and the Coconino sandstone laid down in that ancient period is being quarried and sold all over the United States for building patio floors, sidewalks, fireplaces and garden walls—to folks whose sense of artistry demands something more than ordinary cement and sand and water. We call it flagstone.

For years I have watched trucks loaded with thin slabs of Coconino sandstone roll across the desert highways toward Los Angeles and other coastal points. When I asked where it came from the answer invariably was "Ashfork."

Flagstone from Ashfork contributes so much to the artistry of homes all over the Southwest I have wanted to learn more about this industry, and pass the information along to readers of *Desert Magazine*. I did not know until I went to Ashfork that its quarries not only supply most of the stone for the Southwest, but because of its fine quality and coloring it is in demand in eastern states.

In the latter part of June, Cyria and I drove to Ashfork to get the data and pictures for this story. Our transportation was *Desert Magazine's* ton-and-a-

half truck, for we wanted to bring home a load of flagstone for sidewalks around our Palm Desert pueblo.

Entering the state by way of Kingman, the Arizona border inspectors assessed a special tax of five cents a gallon for the contents of our auxiliary gas tank. Later when we left the state over U.S. Highway 60 at Ehrenberg they taxed us another \$3.50 for the load on our out-of-state truck. If you ask me, they are proper taxes, for the maintenance of good roads in a state as large as Arizona is a heavy burden on a population so sparse.

At Ashfork we went to Ted Cowan for information. In connection with his service station and garage, Ted is weighmaster for much of the stone trucked out of Ashfork. He knows the men who are quarrying and marketing the stone, and mentioned a score of producers and shippers most active in the industry.

There are more than 50 active and inactive quarries within a radius of 25 miles of Ashfork, and it was obvious we could not visit all of them. However, we did want to talk with George F. Jenkin, mining engineer who is exceptionally well versed in the geological history of the area, and Herman Schwanbeck who was the pioneer in the business of mining and marketing flagstone.

We were told that Jenkin probably would be found at the F. C. Ellington quarry eight miles out of town. We found the Ellington quarry on a side-hill in a lovely setting of juniper trees. Neither Ellington nor Jenkin were there so we drove on from quarry to quarry, picking up additional information from each of them.

Coconino sandstone does not occur in slabs, such as are used for stepping stones in the patio. It is a mass formation, generally tilted at an angle of from 15 to 45 degrees, and often cross-bedded—that is, with great blocks of stone in the same mass tilted at different angles. Between these blocks are cleavages which are an important factor in taking out the material.

The locations where marketable flagstone occurs generally can be identified by loose slabs scattered on the surface. But before the quarrymen can start taking out the stone it is necessary to construct roads, and scrape off an overburden of soil. The plateau surrounding Ashfork is a landscape of low hills often covered with juniper, which is about the only tree which will grow on a layer of soil so thin, with meager rainfall.

Most of the quarries were located originally as placer mining claims on federal land; hence there is no rental to pay except the initial filing fees.

When the sandstone mass has been exposed, the stone-splitters move in and begin breaking it up into slabs. Their tools are simple—an assortment of wedge-bars, stone chisels and hammers. It is largely a hand process. Some of the operators use drill bits and dynamite to block out the great chunks of stone which are to be split. Others object to explosives on the ground that they shatter the rock too much.

The special skill of the splitter is in learning to recognize the cleavage planes where the chisel may be hammered into the slab. A skilled workman will split from 1½ to 5 tons of flagstone a day. The wages range from \$4.50 to \$6.00 a ton, which includes splitting the rock and loading it on a truck. Earl Moore at the Mills Quarries, 25 miles southeast of Ashfork, told me his splitters made \$100 a week.

Some of the quarries operate their own trucks and deliver the stone to freight cars or reloading yards in Ashfork. Others sell their stone at the quarry to contract haulers and independent truckers who deliver it on the coast or elsewhere, or who buy it outright at the quarry and resell in Phoenix or Los Angeles or elsewhere at a margin which will pay for their trucking operations.

G. Antolini & Sons, stone contractors and dealers of Santa Barbara, California, operate their own quarry on a hilltop nine miles out of Ashfork. Ernest Antolini, who is in charge of the operations, told me that much of the output from their quarry goes into his company's contract construction work.

At this quarry a stone-cutting machine was in operation. Slabs of sandstone from four to six inches thick are fed under a powerful guillotine blade which cuts them into building blocks. Later, at the Mills Quarries, we saw another type of cutter in which revolving blades like discs groove the slabs of stone as they pass through the machine until they break in strips. Under the pressure of the blades used in these machines the stone actually is broken, not cut, and the delicate coloring and rough broken surface make it very attractive building stone. The blocks are used for fireplaces, store fronts and other wall construction.

Flagstone at the quarries may be bought for from \$7.50 to \$10.00 a ton. Building blocks run up to \$25.00 a ton. Truckers get from \$8.00 to \$12.00 a ton for coast delivery. It is estimated that not less than 1000 tons of flag and cut stone roll out of Ashfork every month, much of it going by Santa Fe freight. The Santa Fe has a rate of \$5.10 a ton for flagstone and \$6.05 for cut stone to Los Angeles.

Coconino sandstone has become a major industry for the 800 people in Ashfork, and the supply seems almost unlimited. In fact there is too much stone and too much competition to make it a highly profitable industry. Some of the operators expressed the hope that sooner or later a cooperative organization would be set up to fix standards and control prices.

Eventually we found George Jenkin. He told us that while some geologists still hold to the theory that Coconino sandstone was deposited originally through the action of water, as is true of the other sand and limestone strata in the great plateau, there is abundant evidence that Coconino was Eolian or wind-blown sediment. In many of the quarries, he said, the curved lines of the original dunes may be seen, and wind ripples in the solid stone are common. Occasionally the tracks of Paleozoic amphibians are found between the layers.

Later we met Herman Schwanbeck. He controls 23 quarries in the Ashfork area, and was busy getting out a shipment of stone to Dallas, Texas, when we finally caught up with him. His wife Dorothy who has pioneered the flagstone industry with him, and her father, Earl Solt, also a veteran in



Pictures of the Mills Quarries at Drake, 25 miles from Ashfork. The building blocks in the foreground of the lower picture are cut from slabs with power machinery. Sometimes the stone lays in curved planes, conforming to the dune construction of the original silica deposits.

Ashfork flagstone, sketched the history of the industry for us.

First flagstone was shipped from Ashfork in the twenties. It was gathered from the surface by Guy T. Felty, an eastern stone worker who came to this area. Herman Schwanbeck worked

for him, and learned how to quarry the stone and became an expert splitter. Later Herman opened his own quarry. That was in 1933. Since then others have entered the business, and production has increased year after year.

At the Schwanbeck home in Ashfork are displayed the many variations in the coloring of the rock found in that area. The color variations are due to minerals in the original rock—iron oxide gave the brown and red tones, feldspar the pinks, manganese the bluish tints, etc.

In one quarry they find a spotted pattern with red polka-dots in a tan background. Another produces delicate shades in bands. It looks like petrified bacon. Other variations include patterns resembling exquisite marble, and I saw one slab that had the imprint of a huge fern frond. Occasionally fossil imprints are found in the sandstone beds, but this fern design was a water stain, not a fossil.

We bought two tons of flagstone from the discard pile at one of the quarries where the color of the stone was a deep red. The only difference we could see between discard flagstone and marketable stock was in the size of the slabs. Normally a slab of shipping stone has from eight to 15 square feet of surface. The slabs we brought home were from two to six square feet each. But they are large enough for our sidewalks—and the cost was \$3.00 a ton at the quarry.

Ashfork, elevation 5,128 feet, is a division point on the Santa Fe. It was given its name in 1882 by F. W. Smith, general superintendent of the old Atlantic and Pacific railroad, predecessor of the Santa Fe. He named it for some ash trees found there. The railroad payroll, flagstone, cattle and tourists are the main source of income. Summer nights are cool, and except when an occasional snowstorm interferes in winter, the quarrying of the rock continues throughout the year.

The plateau was green and colorful as we drove out through the juniper forest. Great fields of salmon mallow were in blossom, with purple rock verbenas and Indian paint brush here and there. San Francisco peaks were visible in the distance.

We were told that the most active quarry in the area was near Drake on a branch line of the Santa Fe which runs south from Ashfork. We drove out there and found Earl Moore, the superintendent, teaching a new crew of stone-cutters to operate one of the machines. It had been necessary, he said, to put on a third shift, and only inexperienced men were available.

The flagstone deposits near Drake were opened originally by Alec Mills. More recently they were taken over by a corporation of which Walter Brennan, film player, is president, and Lloyd G. Rainey and Earl Moore are associate owners.

Moore, although new to the flagstone industry three years ago, has a well organized quarry getting out a carload of stone a day. Moore obviously has had one advantage over the smaller operators near Ashfork—and that is ample capital. He has built good housing for his men, and his entire operation including half a dozen adjacent quarries has the appearance of being well planned, and tooled for efficient production. The day we were there the crew was loading a car of flagstone for Des Moines, Iowa.

With the exception of drills, no power equipment is being used in the actual quarrying of the sandstone. It is still a rather primitive operation. But Moore told me his next installation is to be hoisting equipment to get away from the hand labor now involved in loading out the stone.

And that is the story of Ashfork flagstone. We desert dwellers think that sandstorms which once or twice a year deposit a film of dust on the dining room table are very unpleasant. Obviously they are mild zephyrs compared with the sandstorms which in the ancient Permian age swept a 300-foot layer of pulverized silica onto the northern Arizona plateau and left it there to solidify in the millions of intervening years. Those storms must have been a rugged ordeal for the primitive animal forms which were just beginning to appear on this earth.

I have always admired flagstone construction, whether in patio fish ponds, barbecue hearths or garden walks. It has a natural beauty that gives distinction to construction where it is used. And now that I know the geological history of this stone, and have seen the craftsmen chiseling it out of the great blocks of sandstone in which it was created, I will have an added appreciation for its worth.

RESEARCHERS DISCOVER 3000-YEAR-OLD HOUSE SITE

What is believed to be one of the earliest house sites on the North American continent has been unearthed by a party of archeologists of the Southwest Museum, Los Angeles. The find was made while excavating a Pinto culture site on the Mojave desert at Little Lake in the southern end of Owens valley. The group is headed by M. R. Harrington, museum curator, is working for the second season on the desert.

Because only Pinto points are being found in the diggings, Harrington estimates the new discovery is at least 3000 years old. In other excavations near the site, both Silver Lake and Lake Mojave points have been found, in addition to implements of later Indian desert dwellers.

Desert MAGAZINE CLOSE-UPS

A. La Vielle Lawbaugh is an aeronautical engineer by profession, with archeology as the hobby of both himself and his wife. He is a native of the Middle West and attended Indiana Tech at Ft. Wayne, qualifying for a pilot's license while still in school.

He began his professional career with a leading aircraft company in Southern California and helped design some of the best known planes in production in recent years—the Mustang, B-25, Phantom, Banshee, Parasite Fighter and Beech Bonanza. His invention, the Cool-Tank is currently used in more than 2000 aircraft.

He is a member of the Institute of Aeronautical Sciences, Inc., a member of the Army Ordnance association, a registered professional engineer of mechanical engineering, a member of the National Geographic society and a member of the Archaeology Survey association. Has a great interest in travel, has a large collection of kodachrome and black and white shots.

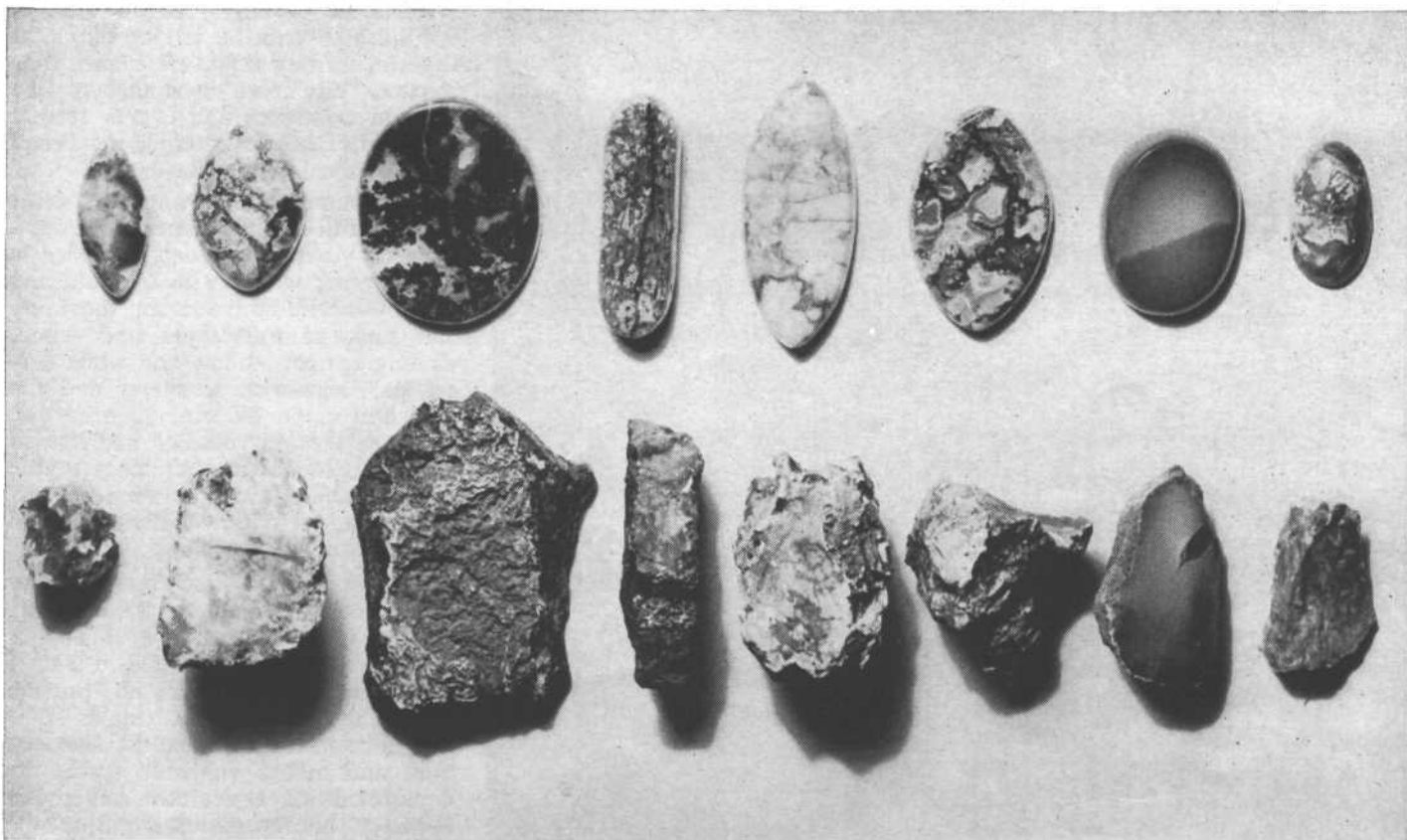
Carma Lee Smithson, who wrote the story of Frank Beckwith for this issue of *Desert*, is an anthropology student in the University of Utah where her husband is studying geology. They collect fossils and minerals and make color slides on their weekend trips into the desert.

Mrs. Smithson writes for various publications, having paid her way through her last year in college with her manuscripts. In a letter to the editors of *Desert Magazine* she wrote: "The Beckwith article you have accepted pays my fee for the Summer Writers' conference at the university."

"I enjoy nothing better than roving around old Indian ruins or getting firsthand information about life among primitive people," she adds. "Eventually I hope to do scientific research in ethnology."

Desert Magazine lost a valued member of its editorial staff in July when Marion Hewes moved to Van Nuys, California, following her marriage to Greeley M. Leshner at Boulder City, Nevada. Marion, a native of Utah, joined *Desert's* staff in August, 1948. Her first duties were in the circulation office but in January she was transferred to the editorial department.

Her husband is a member of the production planning department at North American Aviation company's plant at Inglewood, California.



These gemstones were cut from rough material (below) found in the black butte field. They include moss agate of brown and red, jaspers and variegated brecciated material and distinctive two-toned opalite.

Gems on the Devil's Highway

By HAROLD O. WEIGHT

Photos by the Author

ON A BLAZING DAY in the early 1860's two failing horses pulled a heavy wagon through the dragging sands of *El Camino del Diablo*, southeast of Tinajas Altas. The wagon bore a Mexican family and all its possessions, lured into the burning summer of the southern Arizona desert by tales of fabulous gold strikes along the Colorado river north of Yuma.

They followed a trail of graves. Silent mounds marked each mile of the way, telling mutely of others who had sought wealth and had found death and now were forever a part of the desert's sand and solitude. Perhaps the very number of graves blunted their portent. Perhaps these travelers felt, as humans will, that theirs was a special case and a special providence guided them.

Even when the exhausted horses could fight the road no more, these

The lonely 90-year-old grave of a Mexican emigrant family — only one of countless graves along the treacherous Camino del Diablo — today marks the location of an unusual collecting area just north of the Mexican border in southwestern Arizona. Harold and Lucile Weight traveled this one-time trail of death — a trail taken by Kino, Garces, De Anza and others before them — and found what they were looking for: a variety of gem stones scattered over a wide area. History, legend and practical desert lore are combined in this story of their trip.

lost ones probably were not aware that the harsh hand of the wasteland had closed upon them. There was water in a glass demijohn in the wagon. They would camp through the heat of the day. Perhaps the animals would have

strength, when the cooler night came, to reach the next watering place. But as the waterbottle was being taken from the wagon it slipped and smashed on the lava rock.

Summer heat, sandy distances — and thirst. It was an old, old story on the Devil's Highway, but no less agonizing because it had happened many times before. The Mexican father stared helplessly at the fading spot of moisture on the ground, then toward the northwest and the glittering Tinajas Altas mountains. Somewhere in those mountains, in the granite basins of the High Tanks, water could be found. But where was it hidden? How far must he go? How far could he go?

"Rest in the shade while I am gone," he told the stricken children gathered silently about him. "I will bring water." The mother hushed the smallest child and herded the family into the feathery shade of a palo verde. From the road the father looked back once. "I will return and all will be well," he called reassuringly. "Do not leave this spot."



From Tinajas Altas cove, the Camino del Diablo winds across the Lechuguilla desert toward the Cabeza Prieta mountains. Gem field is just to the right of black lava butte. Cabeza Prieta (Black Head) peak, for which range is named, is dark pyramid left.

The camino wandered in seeming aimlessness through creosote, ocotillo and saguaro. The sun burned down. Stinging perspiration blinded the lone traveler. The mountains wavered and seemed to recede in the rising heat waves. His dragging footsteps slowed. At last he knew that while he might survive to reach water if he went on, he could not return in time to save those who waited for him. He turned back.

It is easy from our present safety to condemn the carelessness that brought this man and those he loved to their last camp. The greed for gold should not have dulled even the sense of self-preservation. He should not have taken his family into the furnace of the desert summer. Above all he never should have trusted to a glass container the water which meant life or death. But all of us have made mistakes which in other times and other circumstances might have ended as grimly. Whatever we might say there is little doubt that he said those things to himself, and more, as he plodded back down the Devil's Highway to death. In the fevered ending perhaps he thought only: "The will of God is a strange thing."

The next travelers along *Camino del Diablo*, who came with the rains, found the Mexican family together beneath the palo verde and reconstructed the grim story. Not far away they dug a grave. In it the six—or was it eight?—bodies were buried. The exact number has been forgotten along with the names of those who lie there. Around the grave a circle of rocks was placed and upon it a cross was outlined in rocks.

The story of the Mexican family became a legend of the camino. Captain D. D. Gaillard of the United States Engineers, resurveying the U. S.-Mexican border, came upon the grave 30 years later. He found the wheel ruts still visible where the Mexican had pulled his team from the road. Pieces of glass and wickerwork from the broken demijohn and the skulls of the two horses still lay on the ground.

When Lucile and I came down the *Camino del Diablo* in March, 1949, the weather was only pleasantly warm. We took the branch of the camino which follows the eastern side of the Gila mountains as that on the west, which passes the old Fortuna mine, is reported in bad shape. The two join a little north of Tinajas Altas cove.

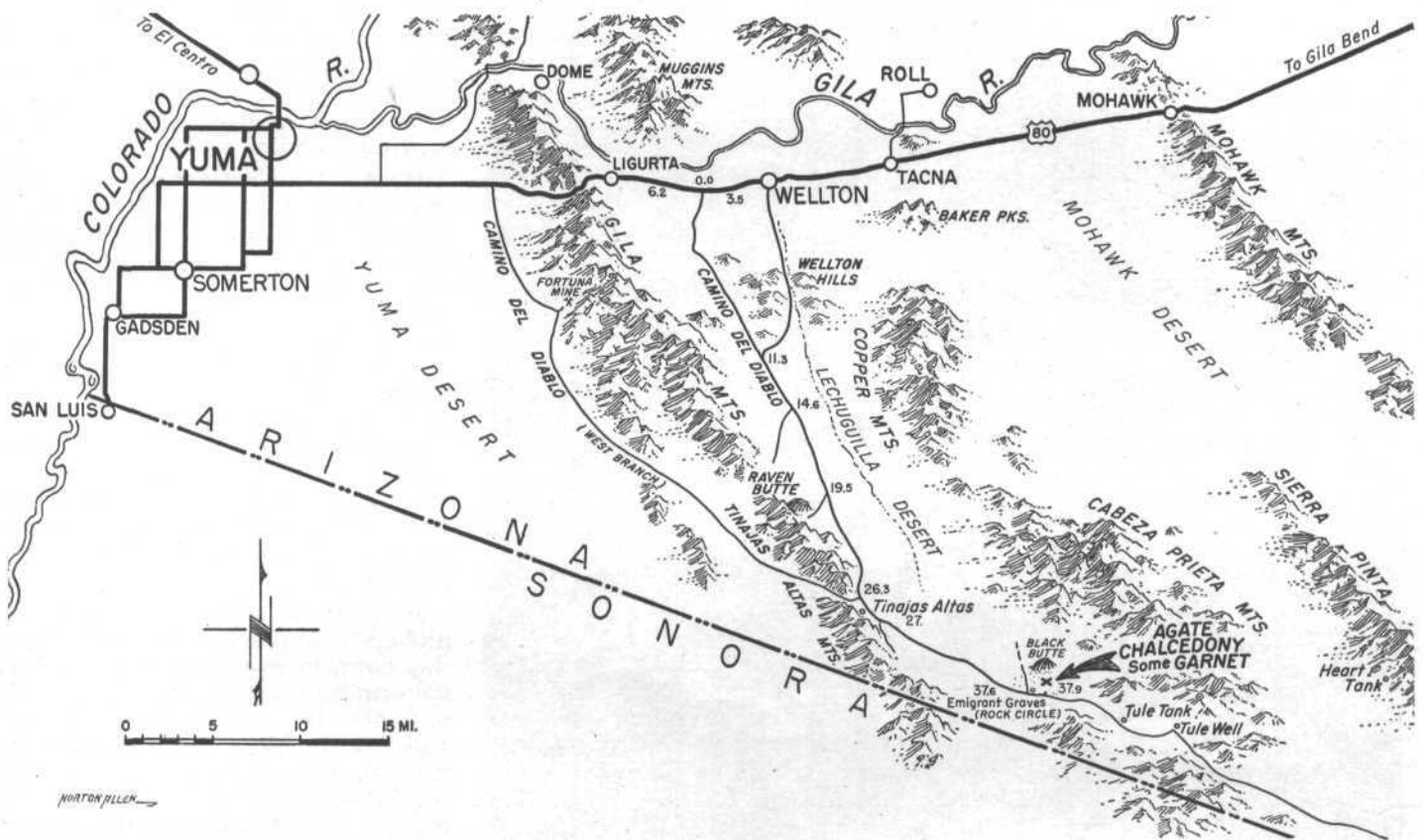
We left the paving of Highway 80 at 6.2 miles beyond the service station at Ligurta, turning right. Here an inconspicuous dirt road dives through the railroad underpass and curves around a little rise before entering the broad plain of the Lechuguilla desert.

The country was glowing and sweet scented with Arizona's finest flower display in years. The road threaded a magic fabric woven with the gold and rose of encelia and verbena, the white and pink of rafinesquia and nama, flaming apricot mallow and white desert star, rose-wine krameria and the gold and cream of evening primrose. Many of the tall ocotillos had lighted their red torches and stretches of the narrow band of earth between the ruts of the road were crowded with budded and blooming desert lilies.

The weather continued perfect as we idled along, camping at Raven butte and spending several days at Tinajas Altas cove. We were treated to a brief freshening fall of rain one night at the cove. The road as far as Tinajas Altas was in good shape. Since the Mexican hoof and mouth epidemic scare, the department of agriculture has maintained a border patrol camp at the cove and cars travel the route to the highway and to Wellton quite frequently.

When we headed southeast from Tinajas Altas we found that section of the road, while still rough and twisty, much better than it had been a year before. It seemed impossible that this shining, flowering land had been the grim and deadly pathway cursed by the suffering, dying adventurers of two gold rushes. If we doubted it, the proof was forthcoming a little less than 11 miles beyond Tinajas Altas when we stopped the car beside an irregular circle of rocks to the left of the road. This, if Captain Gaillard was right, marked the lonely grave of the Mexican emigrants. On an earlier visit we had been told that the ring was an old Indian sign. But comparison of the circle and its background with a photograph Gaillard had taken more than half a century before proved it to be the spot he identified as the mass grave.

It also demonstrated how little the desert changes through the years. The circle, nearly 30 feet in diameter and made of small rocks half buried in the soil, had come down the decades unbroken. But the cross which earlier travelers reported was gone. Its rocks apparently had been used to outline the crude figure of a man running. A string of small stones in the circle pointed roughly toward Tinajas Altas. Comparatively fresh caliche on the exposed surface of some of the rocks



showed they had been moved more recently than those which formed the circle. Caliche is the whitish calcium carbonate so often found on the undersides of desert rocks, apparently leached out of the soil by rains and redeposited.

Who shifted the rocks and why? Was it the simple vandalism which seems an inherent trait of the human race? Did Indians adapt the circle into a sign for their own purposes as has been suggested? The latter hardly seems likely. There have been few Papagos in the area in recent times and little need for such signs after the camino was well marked. During the war the army had an emergency landing strip to the north and tracks of military vehicles still can be seen around the circle. Perhaps the answer may be found there.

In addition to following the old road through, Lucile and I were interested in rock hunting possibilities along the camino. Many early Southwestern explorers and travelers made reference to pretty stones along the routes they followed. Some even picked up unusual specimens and kept them. So far I have been unable to find any such references in the accounts of those who followed the Devil's Highway. Such tragedies as that of the Mexican family explain why. Along this camino the prime in-

terest was water and escape from the forbidding land.

But there are places of interest to rockhounds along the road. Less than half a mile beyond the rock circle the road becomes rougher and climbs onto a low mesa coated with boulders of black lava which have eroded down from a great black butte in the Cabeza

Prieta mountains. We had reached that mesa on an earlier trip and had stopped there for lunch. Wandering about, food in hand, as rockhounds will, we had come upon chalcedony roses, bits of carnelian and odd rocks which looked polishable. Our time then was limited. We had no opportunity to see how much material was there or where it had come from.

This time we pulled off the road and made camp in a little flat on the edge of the wash just before the road climbed the mesa. There was ample evidence that generations of desert travelers had camped in the shallow valley. Once, apparently, there had been a good stand of palo fierro—the desert ironwood. Now only burned and chopped stubs and ash-mixed ground remained. But a short hike up the wash brought us to sufficient dead limbs for an evening fire.

After supper we hooked up the portable ultra-violet lamp and tramped the slopes of the mesa in darkness, seeking what might fluoresce. We found a few pieces of chalcedony that showed pale green. Then, against a dark flat rock ahead we saw an intense greenish fluorescence. I was about to pick up the brilliant specimen when I realized that it showed the perfect outline of a scorpion and remembered what I had

ROAD LOG

- 00.0 Underpass on south side of Highway 80, 6.2 miles east of Ligurta, 3.5 miles west of Wellton. Head south on dirt road.
- 11.3 Wellton branch comes in from the left from the northeast.
- 14.6 Branch right marked Cerro Prieto pass. Keep left.
- 19.5 Sandy trail right to Raven Butte cove. Keep left.
- 26.3 Branch right to sandy road through Tinajas Altas mountains and to west arm of Camino del Diablo. Keep left.
- 27.0 Tinajas Altas cove.
- 27.9 Old sign right and faint, sandy tracks lead to Coyote Water. Bad road. Keep right.
- 28.1 Road Y. Right branch is supposed to go to Surveyor's Tanks. Keep left.
- 37.6 Rock circle, left, identified as the mass grave of a family of Mexican emigrants. Road branch, left, goes to wartime emergency landing strip and into Cabeza Prietas. Keep right.
- 37.9 Road climbs to black mesa collecting area.



Desert lilies and stone roses among the black lava rocks of the camino gem field. These roses are the most common collectors' items in the field. Few of them are perfect, apparently having suffered excessive weathering.

learned long before—that one should always use a white light on fluorescing objects in the field before touching them. It was a scorpion. This particular specimen was slender and about two inches in length, apparently one of the two dangerous species. Incidentally, an ultra-violet lamp might offer an excellent means for checking a camp for scorpion intruders at night.

Our fire had burned to a bed of coals when we returned. We sat by the embers a long time, unwilling to leave the shining peacefulness of the desert night. We could not see the ruts of the Camino del Diablo, but we knew they were there, less than a hundred feet away.

The Devil's Highway is an old, old trail whose roots go back before the coming of the European to the Southwest. Kino took that trail, and Garces. De Anza once passed close to the spot where we were camped and so did Pedro Fages, convoying the colonists he had rescued from captivity after the Yuma Indians revolted in 1781. With the California gold strikes began the rush of Sonoran miners, Texans and eastern emigrants who wished to bypass the Apache country. As hundreds

of ill-prepared travelers died along the arid way, the grim name *Camino del Diablo* was applied. New graves were added when gold discoveries along the Colorado and the Gila brought it into renewed use during the 1860's. After the Southern Pacific railroad was completed, it saw little travel.

No ghost wanderers along the camino disturbed our sleep, but early in the morning a department of agriculture patrol jeep came buzzing incongruously along. Shortly after sunrise, with collecting sacks, picks, canteens, citrus fruit and photographic equipment, we commenced a survey of the mesa from the road to the slopes of the Cabeza Prietas. Since the black lava composing the large part of the mesa cover obviously came from the black butte looming above us, it seemed logical that the scattered cutting material also came from the butte. We hiked in a great loop toward the butte, which makes a magnificent landmark against the white granite composing most of the Cabeza Prietas. The going was rough and the sun, as it swung higher, made itself felt. Finally I crossed a wash and climbed the slope of the butte from which quantities of

the lava were washing down across the underlying granite. I found, as is frequently true in desert rock collecting, that my logic did not work out. There seemed to be no cutting material coming from the black flow.

It was a puzzle. The chalcedony and jasper we were finding obviously were volcanic in origin and this butte seemed the only evidence of volcanism near by. Then I remembered that Kirk Bryan in his water supply paper, *The Papago County, Arizona*, mentioned the occurrence of Tertiary conglomerate in this general area. I decided the mesa might represent one of these occurrences—might be composed of the remnants of mountains eroded down and consolidated eons before. The weathered specimens we had been finding would be survivors of the same process.

As I rose to hike back to the more profitable mesa area, I realized Lucile was nowhere in sight and that I had not seen her for some time. It would be difficult to become lost in this country, but easy to fall or twist an ankle in the rocky gulches. As my worry mounted, I caught sight of her northeast of the lava area, scrambling industriously up and down the little ravines in the low granite hills. She did not observe my panting approach and explained the whole matter when I arrived in one word: "Garnets!"

We all have our favorite rocks, but Lucile has a passion for garnets of all kinds. The day before I had examined a pegmatite vein in a granite spur and had guessed that somewhere in those ridges there might be garnet. I should have known I was starting something. Lucile decided that she was going to find that "somewhere," and find it she did. The specimens she showed me were gemmy little chips of fine deep transparent red. Most of them were cleavages so small that only tiny stones could be cut from them. We found only a few complete garnets, a number showing several faces. But a vial of the chips would be most attractive for the rock shelf.

The amount available on the two low mounds we investigated, which lie south of the black butte and west of the main granite chain, is limited. But similar rises to the southeast may contain more. And the presence of those Lucile found proves that they do occur in the Cabeza Prietas.

We reached our camp again in mid-afternoon and sat in the narrow shade of the car to compare specimens. We had found the material thinly scattered over the entire mesa. Later investigations showed similar rocks as far across the desert as the emergency landing strip, and formations of a like nature



This rock circle along the camino near the gem field is believed to mark the mass grave of an entire Mexican family who met death here almost 90 years ago. The stone cross in the circle, reported by early visitors, has been altered by unknown persons to a long "pointer" and the figure of a running man. Cutting material may be found on mesas nearby which do not show in picture.

continue to the south. We did not find large quantities anywhere, but we did find an interesting variety: red moss agate, a sort of two-toned opalite, jasper, sard, a queer grey-white silicate with brownish lines, and various types of chalcedony. I brought out, more or less on speculation, a number of odd fibrous-appearing little reddish chunks. They took a polish and their brecciated flower-like patterns in reds and browns made striking stones. All the rocks we found were small—many

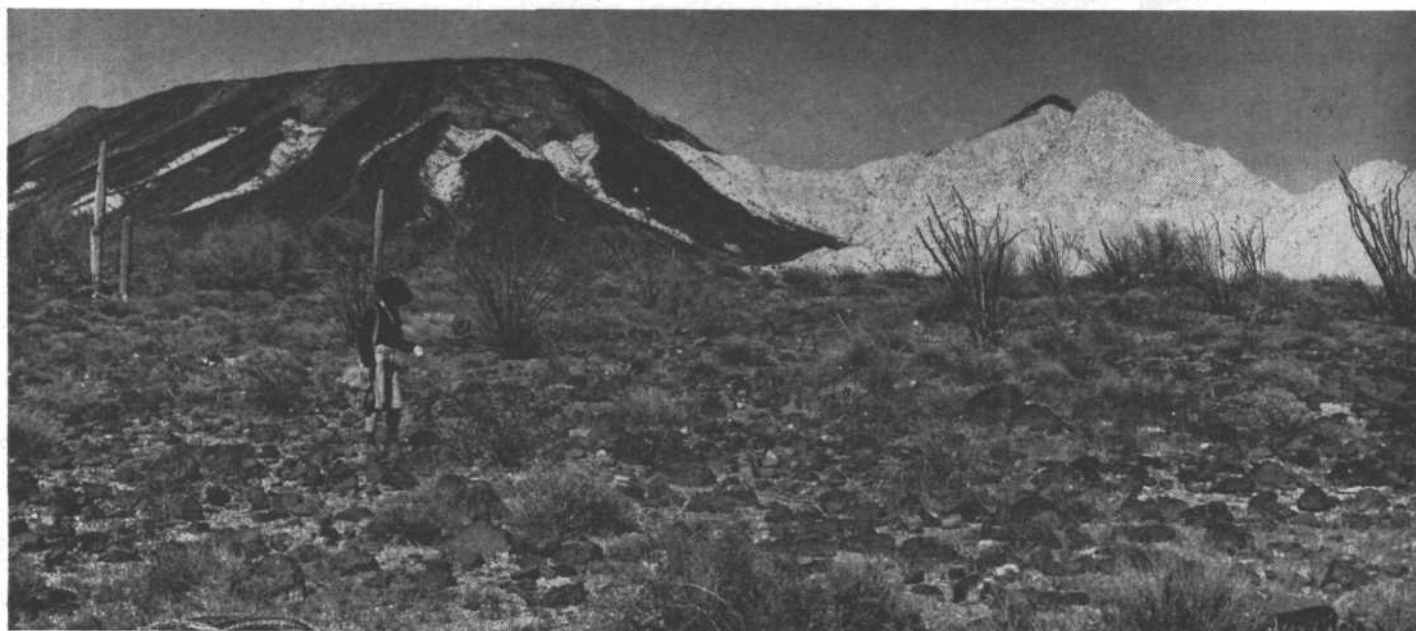
of them furnishing no more than one cabochon per piece. This definitely is no field for the truck collector. But it will supply some beautiful rocks for the desert lover who wants a little hunting to make a trip completely successful.

When we had sorted and packed our rocks, we walked a short distance up the little flat to the scene of an ancient murder. The victim was a desert ironwood. The killer, which had long since passed away, was the desert mistletoe. I have seen many of the strange, con-

torted swellings which occur on ironwood at the point where it has been assaulted by the parasitic mistletoe. But this was by far the largest, measuring at least four feet through while the remaining part was at least six feet in length.

The bitter struggle must have been a long one, since the girth of the ironwood would indicate it was fairly old when it died. An ironwood with a trunk eight inches in diameter once was checked for age and proved to

Rock collecting field at the southeastern edge of the Lechuguilla desert. The great black butte against the light granite of the Cabeza Prietas makes identification of the field easy.



have lived 77 years. Probably the tree outlived the plant which invaded it. Parasites often kill their hosts, then find themselves starving to death. Sometimes we wonder why such ruthless invaders exist. Then, when we hear a mockingbird singing exuberantly after feasting on the red mistletoe berries, we know at least part of the answer. At any rate, the old ghost ironwood with its great tumor and its twisted branches, looking like some monster from earth's forgotten past, is a true desert curiosity. I hope those who visit the area will leave it standing, going a little farther for their wood as others before them have done.

The only real victor in this grim battle of the plant world would appear to be the saguaro which is growing straight and tall beside the dead ironwood. These giant cacti often start their lives under the shelter of a desert tree or shrub. Or rather, those which start with such protection have a better chance for survival. But when the saguaro grows tall enough, a deadly struggle commences between it and the plant which has sheltered it. Now and again the two work out a compromise and live in harmony. But the battle usually ends with the death of one participant. I have seen ironwood skeletons hanging in the crotches of saguaros, apparently pulled bodily from the ground as the plant grew upward. And I have seen saguaros shoved to the ground by aggressive tree limbs or dying of rot where the branches have pierced their sides.

The desert seems peaceful to us, and from its contrast to the clamor of our lives we can obtain peace. But to the native things in an arid land there is little peace. The struggle for food, for moisture and for living room is almost constant. Man himself, when he faces the desert on its terms rather than his own, finds the wasteland intolerant of carelessness and merciless in punishment for mistakes. Often in the past it has demanded the payment of a life for a lesson learned too late.

A few years ago it would have been foolhardy for the average desert visitor in a stock car to attempt the sandy hot deserted *Camino del Diablo* even from the highway to Tinajas Altas. Perhaps in another year it will be foolhardy again. But the last two times we have been in, due largely to the presence of the patrol camp at the High Tanks, the road has been in good condition. The Yuma chamber of commerce runs excursions to Tinajas Altas in the cooler months. From the cove to the collecting field mapped here, the road was reasonably good when last trav-

Desert Quiz

At one time or another, the answers to all the following Quiz questions have appeared in *Desert Magazine*. They cover a wide range of subjects, both current and historical. Twelve to 15 is a fair score. Sixteen to 18 is excellent. A score better than 18 is exceptional. Answers are on page 38.

- 1—If an old desert prospector on a midsummer prospecting trip ran short of water, what member of the cactus family would he most likely seek to quench his thirst? Cholla..... Bisnaga..... Beaver-tail..... Buckhorn.....
- 2—Screwbean is a common name identifying a certain species of — Mesquite tree..... Juniper..... Yucca..... Ironwood.....
- 3—The capital of New Mexico is — Albuquerque..... Silver City..... Gallup..... Santa Fe.....
- 4—Leader of the Mormon Battalion which crossed the continent in 1846-47 was — General Crook..... Kit Carson..... Capt. Cooke..... Jacob Hamblin.....
- 5—Important tributary of the Colorado river which is crossed by U.S. Highway 66 near Holbrook, Arizona, is — San Juan..... Gila..... Little Colorado..... Paria.....
- 6—Zabriskie Point is a well known lookout for travelers in — Death Valley..... Grand Canyon..... Painted Desert..... Bryce Canyon.....
- 7—Historians generally agree that the first Indians contacted by Marcos de Niza's expedition in quest of the Seven Cities of Cibola were — Apache..... Zuni..... Hopi..... Navajo.....
- 8—Billy the Kid was a notorious outlaw in — California..... Arizona..... New Mexico..... Nevada.....
- 9—The reservoir from which the Salt River valley of Arizona receives its main water supply is behind — Roosevelt dam..... Hoover dam..... Elephant Butte dam..... Coolidge dam.....
- 10—The man generally credited with the discovery of silver at Tombstone was — Pauline Weaver..... Henry Wickenburg..... Wyatt Earp..... Ed. Schieffelin.....
- 11—Banded Gecko is the species name of a desert — Lizard..... Snake..... Bird..... Fish.....
- 12—The tribal taboo against a young man looking at his mother-in-law is observed by the — Yuma Indians..... Hualpai..... Yaqui..... Navajo.....
- 13—Galleta is a desert — Flowering vine..... Grass..... Cactus..... Tree.....
- 14—The name Dellenbaugh is associated with — The capture of Geronimo..... The navigation of Grand Canyon..... Discovery of gold at Virginia City..... Operation of the Pony Express.....
- 15—Canyon de Chelly is located in the reservation of the — Navajo..... Papago..... Pima..... Apache.....
- 16—The desert shrub commonly called Brittle Bush is — Encelia..... Mallow..... Senna..... Holly.....
- 17—Crystals known as Iceland Spar are — Quartz..... Calcite..... Manganese..... Iron.....
- 18—Carlsbad, New Mexico, is on the banks of the — Rio Grande river..... San Pedro river..... Pecos river.....
- 19—Eilley and Sandy Bowers became fabulously rich at — Rhyolite..... Virginia City..... Tonopah..... Panamint City.....
- 20—If you wanted to climb Mount Timpanogos you would go to — New Mexico..... Nevada..... Arizona..... Utah.....

eled. Beyond that point it should be attempted with caution since there are rocky and sandy stretches.

But it is not a safe or pleasant summer trip to the black butte. It should not be attempted at any time unless your car is in good condition, unless you have water, food, blankets and the ability to walk back the distance you

have driven in. The only difference between the modern traveler and the Mexican family which faltered along the camino so long ago is a freely moving, smooth working automobile. The Devil's Highway is not yet a tamed street for the careless. There is room for many more rock circles along its winding way.



Before his ever-present Geiger counter the "uranium king," F. A. Sitton, left, compares carnotite ore samples with John L. Robison. The Geiger counter is a permanent fixture in the Dove Creek, Colorado, hardware store that has become GHQ for southwestern carnotite prospectors and miners. The yellow sample in Sitton's hand has an extremely high uranium content. The darker sample held by Robison contains more vanadium.

Grubstake That Paid Off

By MORGAN MONROE

Photos by the Author

MY ACQUAINTANCE with F. A. Sitton began in the back room office of the Dove Creek Lumber and Hardware company in Dove Creek, Colorado.

Dove Creek is a dusty bustling little town on the edge of the Four Corners desert country where uranium is the magic word in mining. It is perhaps the only small town in America boasting a country store in which a Geiger counter has replaced the pot stove and cracker barrel.

A pleasant kindly man of 49, Sitton looks more like a high school principal

Because he let his heart rule his head, because he liked an old-time desert prospector and grubstaked him, F. A. Sitton today owns 86 percent of all the uranium claims in the Four Corners mineral country, the nation's largest source of uranium producing carnotite. Wealth and influence have not changed this kindly small-town businessman of Dove Creek, Colorado. Here is the story of a man and the atomic age, plus a non-technical review of the history of uranium back to Madame Curie.

than owner of the largest and most valuable independent uranium producing claims in the nation. His 200 carnotite properties strung along the Utah-Colorado boundary are said to represent 86 percent of the total uranium claims in the Colorado Plateau region—to date the nation's largest source of uranium producing carnotite.

For years a successful small town business man, Sitton suddenly has become a figure of national importance through recent developments in the field of atomic energy, for which uranium is the basic raw material.

This atomic-age success story dates back to the days when Sitton operated a store in Monticello, Utah, 27 miles



Using a portable Geiger counter, John L. Robison, formerly Sitton's mining engineer, prospects for new carnotite deposits in the rich Summit canyon area. In this manner Sitton has expanded the original claims he purchased from the estate of an old prospector he once grubstaked.

west of Dove Creek. It began with a good turn he once did for an old prospector at a time when Sitton often staked prospectors operating in the rich Four Corners mineral country.

One of the men Sitton first grubstaked was Mickey O'Neil, an old timer who sometimes spoke mysteriously of his discoveries in Summit canyon, deep in the wild country of San Miguel county, Colorado, near the Utah line.

For years Sitton advanced supplies and tools to O'Neil, later receiving in return options on the elderly prospector's Summit canyon claims as security.

"I had no reason to believe Mickey had anything out there," Sitton says in recalling the transactions, "but I liked him and enjoyed his yarns of desert prospecting in the old days. I think it was just a case of my heart getting in the way of my head."

When O'Neil died in 1940 Sitton held options on 18 mineral claims the old prospector had staked out during lonely years in a little cabin at the bottom of desolate Summit canyon.

Sitton did nothing about the options he held until later investigation proved that O'Neil's claims contained very rich deposits of carnotite, the canary yellow mineral that yields uranium and vanadium. In 1942 Sitton exercised his options and purchased the claims from O'Neil's estate for \$100,000.

Wartime demand for carnotite ore put Sitton in the mining business, "about which I knew little at that time," he says. "Of course, I assumed the government wanted the ore for its vanadium content only—atomic activity was really top secret in those days."

He quickly expanded his holdings as additional prospecting indicated

that the Colorado plateau—the vast area drained by the Colorado river and its tributaries—contained the major commercial carnotite deposits of the United States. During the war Sitton shipped as much as 100 tons of ore daily. Today he controls the largest independently-owned carnotite properties in the nation.

A slim man with a youthful face that belies his 49 years, Sitton wears his new importance lightly. Although he is considered one of the wealthiest men in the Southwest he lives simply with his wife, five children and two grandchildren in the little town he is making famous as a uranium mining center.

Sitton was born in the Ozark mountains of Missouri, first came to Dove Creek in 1921. Slowly he accumulated real estate in the Dove Creek-Monticello area and by 1942 had become the region's leading businessman. As a storekeeper and real estate operator it was his policy to build up new enterprises and sell them as going businesses to the people of his community.

He has financed many of the area's dry-land pinto bean farmers, constructed storage warehouses to assist them in marketing their products, staked prospectors and freely extended credits to his neighbors in good times and bad. As one longtime Dove Creek resident put it, "Fendol Sitton has helped more people over more rough spots than anybody I can think of."

It was that philosophy of living that brought Sitton's good fortune in uranium, although he had no thought of such an unusual development back in the days when he grubstaked old Mickey O'Neil and listened to his desert yarns.

"Now I'm trying to pay the area back for some of the good fortune I've had here," Sitton said in explaining two recent community projects he launched—a fine airport and the handsome new Dove Creek civic center, a recently completed building offering recreational facilities for the entire community. Sitton says it was built with public subscriptions, but everybody in Dove Creek will tell you that his subscription "did most of it."

Serving the town in his second term as its mayor—a job for which he was drafted—Sitton's leadership and personal financial backing have gone far toward making possible the town's rapid growth from its 120 residents in 1940 to an estimated 1500 to 2000 today. New modern stores are replacing the weathered false fronts of pioneer days which lured Zane Grey to Dove Creek, where he wrote "Riders of the Purple Sage" because of "the genuine Old-West atmosphere."

As president of the small but pow-



Pocket of high grade carnotite ore in Sitton's Radium No. 7 mine yields a high percentage of uranium. The light area near the geological hammer extends back under the shelving sandstone several feet. Darker mineral is almost pure vanadium. This is believed to be the first photograph ever made inside an operating carnotite mine.

erful Uranium-Vanadium Cooperative association, Sitton has led the battle for better carnotite ore prices that independent prospectors and miners are waging with the Atomic Energy Commission. The 150 independent carnotite mine operators of the region consider him their natural leader, not alone because of his large holdings, but equally for his genuine interest in their welfare.

Sitton thinks the AEC can do a far better job than it is now doing, but recognizes the growing pains from which he feels it will eventually recover. And he still remembers those long lean years Mickey O'Neil lived in that little cabin just a few feet from great wealth when there was practically no market for carnotite.

Sitton doesn't want the same thing to happen to other independent prospectors and miners during America's peacetime uranium ore buying. And, as he points out, "This is not the first

uranium boom and it will not be our last."

History bears him out. A similar, smaller boom took place in the same area before the turn of the century when atomic energy was a mere dream in the minds of a few brilliant scientists. Carnotite's present-day importance as a source of uranium goes back to discovery of an odd yellow mineral in the sandstone of the Four Corners country. Early settlers knew of it before 1880.

At least two scientists, Herman Fleck and W. G. Haldane, have stated that research indicates that the Ute and Navajo Indians probably used carnotite as a pigment long before the first settlers arrived in the Four Corners country.

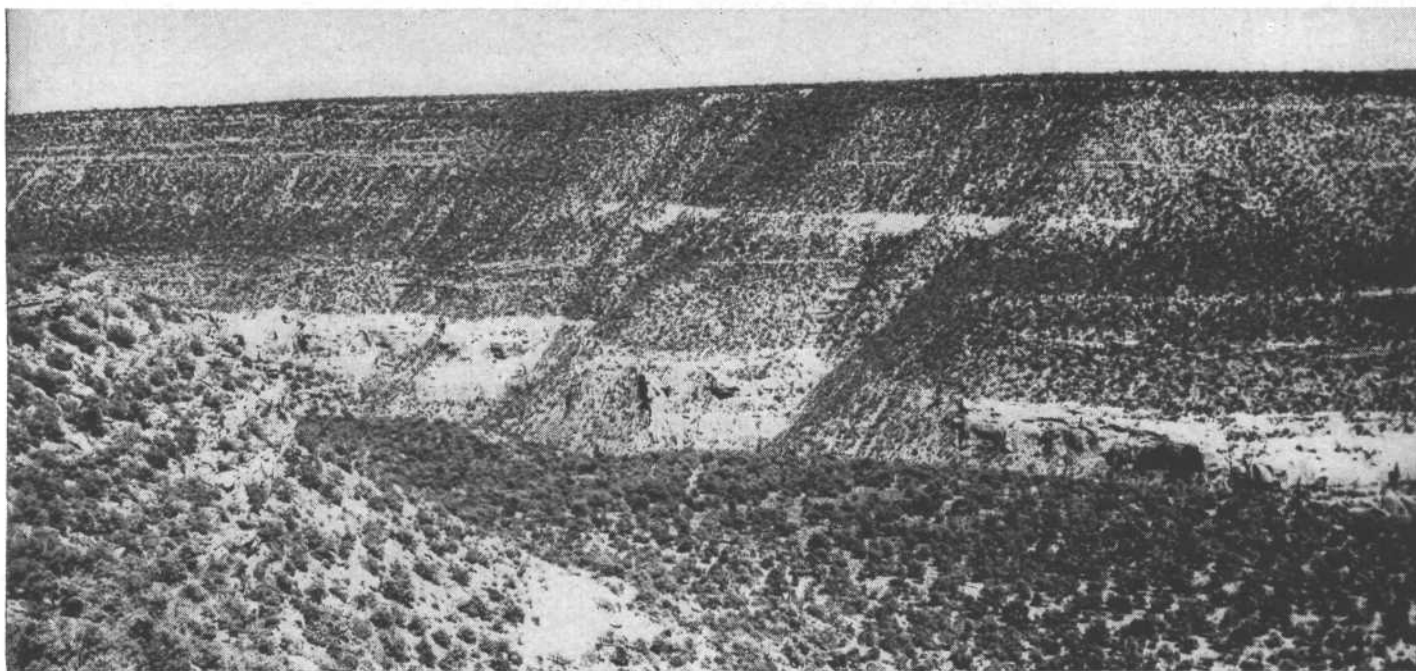
As early as 1881 carnotite attracted the attention of prospectors. In that year Tom Talbert, a prospector and miner, staked a claim on Roc Creek

in the Paradox valley area and sent some of what he called "the yellow mineral" to an assayer in Leadville, Colorado.

Talbert was advised that the mineral contained a little gold and some silver, but his and other efforts to determine all of the elements present in the ore were unsuccessful. In the years that followed the Roc Creek claim was staked by other prospectors but, failing to find gold or silver in quantities sufficient to interest them, each in turn permitted his claim to lapse.

In 1887 the claim was relocated and named the Copper Prince in the belief that it contained "chrome-copper," but the property soon was abandoned and remained idle until Gordon Kimball of Ouray, Colorado, and a group of associates acquired it in 1898.

In that year Kimball mined ten tons of yellow ore on the property and sold it in Denver for \$2,700. Some of the



Desolate Summit canyon near the Colorado-Utah boundary just north of Four Corners has proved to be the center of a huge carnotite "belt" that extends into Arizona and New Mexico. Once considered worthless, its outcropping sandstone ledges contain millions of tons of carnotite deposited there by the actions of ancient seas and lakes.

yellow mineral was sent to Charles Poule, a French chemist. After analyzing it Poule found that it contained uranium in sufficient amount to make it commercially valuable.

Meanwhile the German scientist Roentgen had discovered in 1895 that the glow from a Crooke's tube contained penetrating rays which he called X-rays. At about the same time it was learned that uranium salts would produce photographic images, even when surrounded by opaque substances.

To a young Polish student, Marie Sklodowska who later became Madame Curie, fell the research task of determining how and why uranium possessed the power to emit the mysterious rays. From that early research resulted the discovery of radium. A worldwide search for radioactive substances began.

Commercial carnotite mining in the Four Corners country dates from that time, but it was not the uranium content that made it profitable to mine the yellow mineral. The discovery of radium led to the co-discovery that all uranium-bearing ores contained the magical new element, radium.

In 1899 M. C. Friedel and E. Curie finally determined the approximate analysis of the radioactive mineral and named it carnotite after the French president, M. Carnot.

By an interesting chain of circumstance involving research, timing and luck, an incentive to mine the yellow

ore was created. But, as Sitton points out, the ups and downs of prospecting for and mining radioactive ores have been many.

When it was found through experiments with radium that it had the power to arrest certain types of malignant growths in humans a small boom in carnotite resulted in prospecting and mining activity that is today being duplicated on a large scale in the search for the raw materials of atomic energy.

Carnotite activity in the Four Corners country reached sizeable commercial proportions about 1910 and grew steadily for four years until the first World War stopped sale of ore to foreign purchasers in 1914.

It is interesting—and alarming—to realize that several European powers had full access to this source of atomic energy long before the first World War. Had Europe's scientists learned to split the atom then instead of in the 1930's the world's future might have been decided by the first war.

After the initial slump in carnotite mining the demand again picked up and by 1919 the amount of ore produced in the Four Corners area exceeded any previous year.

Picturesque place names—many originally chosen by early-day prospectors—again were frequently heard around camp fires and in assay offices: Maverick Gulch, Klondyke, Bull Canyon, the Joe Dandy claims, McElmo Canyon, Calamity Gulch, Yellow

Jacket Canyon. These and many more were scenes of renewed prospecting activity.

But it was discouraging work. Unlike the modern prospector for radioactive minerals who uses a Geiger counter, jeeps and other products that make his work easier, the only methods of locating carnotite in those days were by sight where it outcrops in sandstone and petrified wood or with expensive diamond drills which few prospectors could afford.

In the 1920's and 1930's activity continued fairly steady on a small scale, with the largest demand for carnotite arising from the use of its vanadium content in manufacturing vanadium steel.

Radium prices had skidded from a high of \$135,000 per gram to \$24,000 as competition from pitchblende mines in the Belgian Congo forced an end to the mining of carnotite for radium extraction. It was during this period that old Mickey O'Neil discovered the rich Summit canyon deposits—but had no market for his find. Yet the yellow mineral was destined to make the greatest come-back of all time.

In the late 1930's experiments by European scientists indicated that when uranium is bombarded with neutrons an isotope of barium is produced. Enrico Fermi, a young Italian physicist, actually split the uranium atom in 1934, but did not realize what he had done. Later two German experiment-

ers, O. R. Frisch and Lise Meitner, escaped from Hitler's Nazi domination to the United States with their findings and the then startling suggestion that more experimenting with uranium atoms might prove they could be split, releasing the vast amount of stored energy contained in the nucleus of each atom. The process, dream of scientists around the world, was termed fission.

At a meeting in Washington January 26, 1939, the European reports were discussed. Confirmation of uranium fission quickly followed in several laboratories in this country and the rest is history. Within six years there followed the first atomic blast near Alamogordo, New Mexico, and the first atomic bomb over Hiroshima.

With equal rapidity the war ended and the atom assumed its peacetime role as the most revolutionary source of energy since the discovery of fire.

And so it was that in 1939 the Southwest's carnotite deposits suddenly became more important than ever before. Today they are one of the nation's most vital natural resources—for peace or for war, depending on how they are used.

Sitton prays they will serve only for peace, but he realizes that the yellow mineral in the sandstones of the Four Corners may well hold the answer to the world's future in either direction.

The most recent uranium boom keeps him busy these days. He personally answered letters from 18 states and several foreign countries the day we met him, all seeking information about radioactive prospecting and mining possibilities.

With the recent influx he is concerned about Dove Creek's limited housing. "We need homes for several hundred families and many more are on the way," he said in summing up the area's new importance. "But many of them shouldn't come here," he added.

Sitton encourages experienced prospectors and miners to come to the region. "We will need them," he says, but tries hard to keep amateurs and unqualified adventure seekers from cluttering the bustling little uranium capital.

"Some of them are good for a laugh, though," he related. "Like the fellow who wrote to ask if I could tell him of a good 'uranium claim' he might come and stake out!"

• • •

Action Is Started . . .

The Flagstaff, Arizona, chamber of commerce has gone on record with a formal resolution asking that Meteor Crater—largest in the world—be made a National Monument. The crater is about 40 miles east of Flagstaff.



Above—While living in this lonely one-room cabin with its smoke-blackened single window Mickey O'Neil, an old prospector whom Sitton often befriended, discovered Summit canyon's rich carnotite deposits. O'Neil lived here for 30 years before his death in 1940. The little cabin stands near a stream in the bottom of the canyon. It is now deserted. "I don't think Mickey would want anyone else living there, now that he's gone," Sitton says.

Below—This pile of carnotite ore, awaiting shipment outside Sitton's Radium No. 7 mine, is valued at \$50,000. The pile is about 30 feet square and five feet high. It is shipped to the Atomic Energy Commission's receiving depot in Monticello, Utah. The dark hole under the ledge in right background is mine entrance.



By CARMA LEE SMITHSON



He knows intimately nearly every rock and rill in Millard county, Utah. That knowledge has been for Frank Beckwith, newspaper publisher of Delta, the key to a kingdom — the open sesame to a wonderland in his own backyard.

He Discovered an Ancient Wonderland

Because one country newspaper editor didn't stay in his office any more than was absolutely necessary, a veritable treasure-land of ancient artifacts, fossils and other geological finds of immense value has been opened up to study. Not only has Frank Beckwith added much to the store of scientific knowledge, but he has enriched his own life by his first-hand contact with the Indians and the intriguing back country of today's Millard county, Utah. Here is the story of an editor-scientist-hobbyist who hasn't let making a living spoil real living.

MY FIRST MEETING with Frank Beckwith, newspaper publisher of Delta, Utah, occurred one afternoon last summer on a field trip with a group of University of Utah geology students. We had stopped at a Delta drugstore for refreshing drinks before leaving this last outpost of civilization on a trip to the House mountains westward from Delta. I had picked up the July issue of *Desert Magazine* and was thumbing through it when the waitress volunteered, "If you're interested in that, maybe you'd like to see a collection of fossils and Indian artifacts in the newspaper office just around the corner."

Two minutes later in the office of the Millard County Chronicle, I saw two heads bent over an array of road maps. Prof. Norman Williams, our geology teacher and trip leader, had arrived before me and was consulting Frank Beckwith for specific directions on the maze of uncharted roads that thread western Millard county in the vicinity of Antelope Springs, our destination. Later I learned that such consultations with Beckwith are routine for geologists, archeologists or other strangers visiting the area.

Soon the newspaper office was crowded with the rest of the geology class, and Frank Beckwith obligingly brought forth for inspection his fine collection of trilobites to give us a preview of what we might expect to find the following day.

Beckwith is a scholarly editor, whose sense of humor punctuates every conversation. His office is a unique departure from that of most newspaper editors. A glass case against one wall is filled to capacity with trilobites, arrows, spear points, Indian knives, other artifacts and a profusion of mineral specimens.

Across the room is a cabinet containing several Indian mummies, much pottery and many articles of aboriginal wearing apparel. About the room on every convenient surface and in every niche are displayed examples of Pahvant Ute pottery and basketry. Pictures of Indians adorn the walls.

Presiding over it all is the amazing collector. Born in Evanston, Wyoming, Beckwith arrived in Delta in 1913 after a seven-year interim in Salt Lake City. Just as Millard county owes much to the publicity he has given it, so he owes the inception of his interest in things prehistoric to it. "In the city you could buy your entertainment and recreation," he explained, "but here it had to be hunted. I began to scout the hills and found that for untold ages plant and animal fossils and Indian

artifacts had been stored away as testimony to the earth's living history."

Beckwith, who had been associated with the banking business in Evanston and Salt Lake City, became the first cashier of the Delta State bank. In 1919 he purchased the Millard County Chronicle, a weekly publication, and gained more free hours in which to wander over the desert and mountains. He kept a car packed with camping gear so that a few minutes after the paper was put to bed Thursday, he could be on the open road to some new adventure. Much of the time he went alone, but occasionally some friend accompanied him.

Over the years the Beckwith collection expanded until he was able to contribute to the Smithsonian Institution 7,000 trilobites of 17 different species. He believes that the trilobite resources of Millard county have barely been tapped. The House mountains are a veritable treasure repository for the collector.

Between Notch peak and Marjum pass in 1929, Beckwith's friend Emory W. John of Delta discovered a distant cousin to the trilobite with several tiny brachiopods which had settled from the overlying stratum and had fossilized upon it. When the two men submitted the specimen to the Smithsonian Institution, paleontologists officially designated the brachiopods *Obolus Johni* and the trilobite cousin *Beckwithia Typa* in honor of the two donors.

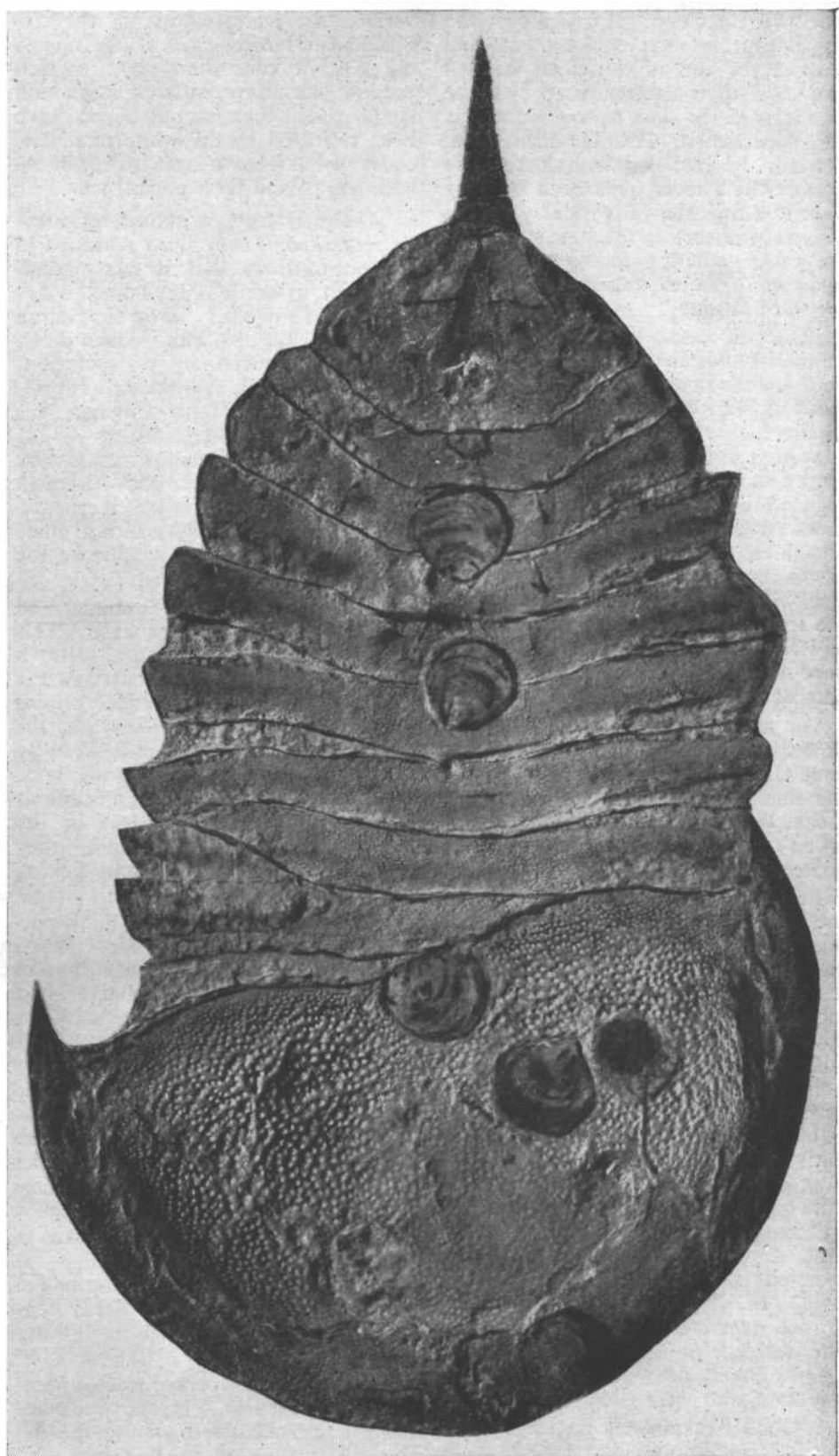
"I'd rather have that honor than \$5,000," Beckwith stated with positive satisfaction.

In his collection is a trilobite *Neolemus* found in Upper Cambrian limestone in 1936 by Nels Bogh, a member of the CCC. This specimen is 3¾ inches long.

Because of his intimate knowledge of Millard county, Beckwith has been host to many notable men from the nation's leading universities and museums when they have been in search of material.

He recalls an amusing incident which occurred on a trip when he was guiding Dr. Charles E. Resser, curator of the U. S. National museum, and his guest Dr. Ruiji Endo of Manchuko, who later published a book on Chinese fossils. After visiting the trilobite fields near Antelope Springs, they had gone southwest to Fossil mountain where they collected Ordovician fauna, trilobites, brachiopods, receptaculites, pelecypods and bryzoa. A little to the south they explored Crystal peak (mapped as White Cone). On the northwest slope a tiny spring issued forth and bubbled along a few feet before sinking into the sand.

Beside it they spotted the ashes of a fire with embers still hot. Around the



A Merostome fossil named by the Smithsonian Institution in honor of Frank Beckwith.

fire were innumerable tracks of a shod horse with big calks at the toe and heel. His curiosity piqued by the absence of human footprints, Beckwith picked up the trail where it led away from the fire and followed it to a point

where the "horse" had sat down, removed the wooden clogs to which horseshoes had been nailed, and had made a hasty retreat wearing the boots of a very human animal.

"How Resser and Endo did laugh!"

Beckwith chuckled. "It was during the days of prohibition enforcement, and here at the end of the earth we had stumbled upon a retreat used by some bootlegger. He had discovered us as we approached. Hastily dismantling his still, he had fled with it and the liquor which must have been brewing over that fire. He was probably having visions of himself in the state pen while we were gathering fossils nearby all unaware of the excitement and dismay we were causing."

Beckwith recalls one incident which might have been his end had it not been for the acute faculties of his dog. He had been collecting fossils all day in the higher hills and was plodding toward camp weighted down by a gunny sack loaded with specimens. A high wind further hampered his progress. The dog trotting a few feet ahead on the trail suddenly swerved; involuntarily and despite his fatigue, Beckwith jumped aside. There beside the trail a rattlesnake lay coiled ready to strike. The roaring wind had deadened the warning rattle except to the ears of the dog.

For many years Beckwith has been on friendly terms with the local Pahvant Ute Indians who have given him the name "Chief Sev-vi-toots" which means "billy goat hair." This, to them, is an apt title because he wears a goatee.

From his intimate association with the Pahvants, Beckwith has learned much concerning their history and ancient beliefs and customs. At one point his interest in paleontology and Indian lore oddly crossed paths when he discovered the chest bones of a warrior with a necklace of trilobites in a position which indicated that it had been suspended about his neck at the time of his burial. This riddle went unsolved until Beckwith learned from his friend, Tedford Nivir Pickyavit, a full-blooded Pahvant Ute, that to the Pahvants the trilobite resembles the claws of a lizard foot. Anything not made by man was credited by the *weenoonse* (the old ones) to their god Shenobe. The braves, explained Ted, wore the trilobite necklace as a "body defensancy" against enemy arrows. It was effective for those who were good.

"Good," explained Beckwith, "to the Pahvant implies correctness, deep religion and full belief in Shenobe as a kindly, beneficent god who assists the pure in heart to fullness of material bliss."

In Beckwith's office one day Ted laboriously drew a sketch of a Pahvant brave wearing the fossil necklace which consists of 13 trilobites strung between clay beads. Later Ted's brother Joe, although a more reluctant informant,

verified the interpretation of the significance of the necklace. Often Indians are reticent concerning their religion because they have suffered scorn and laughter and their sacred beliefs have been ridiculed by the white man. Because he has been a loyal friend, Beckwith has gained their confidence.

"Theirs is truly a nature religion," he remarked. "They lived so much in the out-of-doors that it was natural for them to credit things they didn't understand to their supreme Nature God who, like the white man's deity, sometimes 'moved in a mysterious way.' An example of such an interpretation of a natural phenomenon was their belief that the dendrites visible in moss agate or on slabs of shale were the handwriting of their god. Although they couldn't read what it meant, Shenobe-a-pope clearly was not made by man, and therefore it must be the doodling of a higher being.

"The Pahvant name," commented Beckwith, "means 'plenty water.' This may seem to be an anachronism for a desert people, but it is understandable to anyone who has experienced a rain-storm in this vicinity. Afterward, the ground for miles around is covered by shallow lakes. The neighboring tribe to the east referred to the Pahvants as 'people who stick their feet in the water' because after a rain, they couldn't step outside without getting their feet wet."

In his collection Beckwith has a pottery basket filled with maize. When the Indian woman carried this "basket of plenty" it meant that the harvest had been good, and there was security for the winter. The traditional basket itself is of symbolic design. A rim of stair-steps represents the earth terraces or contours which yield the bounteous harvest. Arching from the lip of the basket is a handle in the form of the rainbow which, contrary to Old Testament precept, was the harbinger of rain. On the front of the basket a thunderbird with outspread wings indicates falling rain. At the base of the handle on each side is a butterfly considered by the Indians to be a water creature.

Rain to a desert people was of paramount importance. Prayers and ceremonies were centered around the desire for enough of it. Beckwith displays a stone worn smooth from much handling which resembles a bear track in outline. The shaman or priest used it in a ceremonial prayer for rain. Holding it in one palm, he would touch it to the heart and other significant points as he implored that there be "enough rain so that Broadfoot the Bear will leave a print in the land."

The Pahvants made grey pottery

from the local clay tempered with fine lava rock which gave the necessary consistency for the upper curve in the cylindrical bottles they fashioned. Ornamentation consisted of designs in black paint or indentations made with the thumbnail, a hawthorne or a bulrush.

Some water bottles were woven, then made water-tight by shaking heated rocks and pitch pine gum together inside until each tiny crack was sealed.

The Pahvants had an extensive supply of obsidian in Millard county about 55 miles down the river from Delta. They made arrow points, spears, knives and scrapers, and many years before the white man came, they mounted obsidian blades in wooden handles with glue boiled from fish.

Millard has been scouted for Indian artifacts and many have been recovered, but it is probable that dozens of sites remain unexplored. In the past, untrained persons have destroyed much that would have been of value to the scientist in reconstructing the life patterns and reading the history of ancient Indian tribes. Once a site has been disturbed, its story is lost wholly or in part, for the archeologist must summarize much of his information from the relative positions and original conditions of artifacts. The West is a natural laboratory in which this scientist does his research. Beckwith for many years has encouraged research in his home county and has contributed much by his unselfish efforts in directing or guiding scientists to localities where he has discovered valuable material in his wanderings.

He has written extensively on the subject in his own newspaper, in other publications throughout the state, and recently has published a book about his adopted home under the title of *Millard and Nearby*.

The Pahvant Utes say Beckwith is the big chief of a "pokent khan" or "word house," since "pokent" denotes marking a trail, making a message, or leaving a note, and a "khan" is a house. The "pokent" or word trail Beckwith has made in his book and other publications has placed Millard county solidly on the map and will be a lasting monument to its author.

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Indian Textiles Exhibit . . .

A special exhibit of southwestern Indian textiles, particularly those of the Navajo who are known as experts in the weaving art, will be offered during the month of September by the Southwest Museum in Highland Park, California.

Besides blankets and other woven examples, raw materials used in their manufacture—looms, wool, cotton, dyestuff—will also be displayed.

MINES AND MINING . . .

Tonopah, Nevada . . .

Long, costly hauls to McGill, Salt Lake City or Dayton, Nevada, will be a thing of the past when a proposed new 100-ton custom mill is completed within a few miles of Tonopah, designed to serve Nye, Esmeralda, Mineral and other nearby counties. Corporation papers have already been filed at Carson City, site for the mill is selected, and construction has started. A survey of the area has shown ore in sufficient quantity to keep the mill humming will be available from mines in Tonopah, Divide, Liberty, Nivloc, Mina, Luning, Manhattan, Meadow Canyon and other communities. The modern mill is estimated to cost between \$200,000 and \$250,000. Metal production of this region is expected to increase many times with installation of the custom mill and elimination of long hauls. Mining and handling of ores of any grade under \$25 to \$30 is said not to be profitable when long hauls are involved.—*Tonopah Times-Bonanza*.

Beatty, Nevada . . .

Known at one time throughout the world for its famous "green gold," the old Bullfrog mine near Beatty is back in production. A hot streak showing free gold is being developed just above the 100-foot level, shipments go to the smelter at McGill. In its heyday the Bullfrog produced extremely rich ore, distinguished by the green formation which set off the free gold to such an advantage that it was used extensively for jewelry, sold at fabulous prices.—*Beatty Bulletin*.

Tonopah, Nevada . . .

An extensive development program involving rehabilitation of the Morning Star gold property in the Keeler area has been undertaken by Sloan Flack and Roy C. Troeger of Los Angeles, associated with H. L. Eckloff of Tonopah. The Morning Star has long been idle.—*Tonopah Times-Bonanza*.

Winnemucca, Nevada . . .

The Humboldt county chamber of commerce apparently believes in practical measures. The chamber has purchased a portable Geiger counter which is loaned to prospectors of the area. Many have already made use of the instrument in the quest for radio-active ore deposits. Booklets on uranium and uranium prospecting are also available at the chamber of commerce.—*Humboldt Star*.

Reno, Nevada . . .

An extensive deposit of phirestone, a unique multi-colored building stone similar to but even harder than marble, is being developed near Fallon, Nevada, according to Charles O. Dorman of Reno. Director J. A. Carpenter of the Nevada bureau of mines says that to his knowledge there has been no previous recording of such a stone. He believes the phirestone and an adjacent deposit of solid green material resembling turquoise in color were deposited by two volcanic craters which erupted in the distant past and then sealed the formation. Phirestone is said to contain almost every known mineral, giving it unique colors and designs. The phirestone is mined in a large quarry and cut in a processing plant east of Sparks. It is so hard it can be cut only with a diamond saw. Both phirestone and the green material take a high polish, are said to be ideal for facing buildings and for other structural and decorative uses. It is believed at least 8,000,000 tons of phirestone is exposed in surface workings.—*Los Angeles Times*.

Mina, Nevada . . .

The old Marietta district out of Mina is again attracting interest. Louis DeRousse reports discovery of a lead-silver vein which he believes will develop into a heavy producer. In a crosscut, the vein shows a width of at least 40 inches. Samples sent to the University of Nevada assay office showed content of 10 percent lead and enough silver and gold to bring total value up to around \$35, DeRousse said. He reports he has uncovered several gold veins in the Marietta district rich enough to work.—*Humboldt Star*.

Goldfield, Nevada . . .

The famous old mining camps of Candelaria and Rawhide, dormant for many years but with brilliant production records in earlier days, may be revived. The Newmont Mining corporation is surveying the properties and may expand its activities to work the one-time rich gold mines.—*The Goldfield News*.

Wall Canyon, Nevada . . .

An antimony trioxide plant located in Wall canyon 60 miles north by road from Tonopah, is now in production. It is held by the Last Chance Mining company, ore reserves are ample to run the plant indefinitely, according to N. L. Brown, manager.—*Tonopah Times-Bonanza*.

Tuba City, Arizona . . .

Washtubs full of yellow sand which made a Geiger counter "bounce like a Yo-Yo" were clues to what is believed to be another uranium strike, found by a Hopi Indian. Walter Albert, 40-year-old reservation policeman, and his wife Dasey staked a two-acre claim nine miles south of Yuba City after they had read in newspapers and magazines descriptions of carnotite, uranium-bearing ore. The tract on the reservation is covered with petrified logs, sand and a rocky ledge—all impregnated with the yellow carnotite, Albert said. After sending samples of sand, petrified wood and rocks from the ledge to the department of mineral resources at Phoenix, indications are that the strike is a rich one. Prospecting on the Indian reservation in northern Arizona has been limited to Indians and representatives of big companies. This is because the U.S. Indian Affairs department regulations require that claims be put up for auction to the highest bidder, regardless of who makes the strike. This is said to virtually limit bidding to big established companies. The Indians benefit regardless of who takes the bid. They receive a portion of the bid price and a 10 percent royalty on mined uranium.—*Humboldt Star*.

Moab, Utah . . .

Discovery of a new oil field in Utah has been announced by R. D. Sloan, Denver, division exploration manager for Carter Oil company. Reportedly flowing at the rate of approximately 1600 barrels a day, the Carter No. 1 Ute Tribal wildcat test is eight miles north of Roosevelt. It obtained production from the lower Tertiary formation between 9351 and 9391 feet. The oil has a paraffin base, according to Sloan, and a gravity of 31.7 degrees. Carter company had previously drilled three dry holes in the Uintah basin at a cost of more than a million dollars.—*Times-Independent*.

Humboldt County, Nevada . . .

If the big gold vein in the Getchel mine, located as late as 1934, persists to greater depth, this property gives promise of developing into a major producer and may within a few years give the Homestake mine in South Dakota a close run for first place as leading gold producer in United States. Ore reserves, not counting potential deposits, easily total 8 million tons, according to W. F. Boericks, mining engineer. Average value of the ore assays from \$7 to \$10 in gold, a new vein which assays \$20 has been opened underground.—*Tonopah Times-Bonanza*.



Photograph by Milton Snow

HEALER OF HEARTS AND SOULS

By ADDISON N. CLARK
Oakland, California

The Desert: The Yucca, the Joshua Tree,
The Quaker-grey Sage—they are Eden to
me.

I love the mesquite, the saguaro, the sand;
The weird ocotillo, the e'er-thirsty land.

I love the fierce cholla that stabs in the dark;
The furtive coyote, his night-rending bark.
I love the tall palm trees that flock by them-
selves;

The eerie grey smoke trees like pale, ghostly
elves.

But why should I thus list the component
parts

Of one sweet ensemble with balm for all
hearts

And souls that need healing? Your share
awaits you—

Come claim what is yours and you'll find
this all true!

NEW MEXICO SAND STORM

By VEDA NEVILLE CONNER
Albuquerque, New Mexico

I can't tell where the sky begins
Or where the mesas end,
For the whirl of sand and dust and sun
Has made a golden blend.

The distant mountains are lost and gone,
In faith alone exist,
The trees at the foot of the mesas toss
Like ghosts in a tawny mist.

The world is an unreal thing of dreams,
The sun a lurid glow,
But I know that minutes will bring the end,
For I know New Mexico.

Soon the rain will conquer the dust,
And the sand become earth, and then
The rain—and my faith—in glory will bring
The mountains back again.

The world will sparkle with points of light
From the sun as it shines once more,
And the sky will be a deeper blue
Than even it was before.

Vaquero

By JANE KJERNER
Kansas City, Missouri

Reek of leather and horse and sweat,
Sun baked sand and the dusty sage,
All the day foot in the stirrup set,
All the way, sand and sage, and yet . . .
Golden the sand and silver the sage,
And these but part of the desert's wage.

Opal fires of her dawning's sky,
Turquoise the day and gold showered noon
These does she offer, and these take I,
And gift of her breast on which to lie
When dawn is spent, and the golden noon
And twilight's lace is torn by a moon . . .
Then added bounty, the breath of snows
Far, faint snows, and the cactus bloom,
Troops of stars, swarming whither—who
knows?

Only the vagabond wind that blows.

Reek of leather and horse and sweat,
Sun baked sand and the dusty sage,
All the day foot in the stirrup set,
All the way, sand and sage, and yet . . .
Golden the sand and silver the sage
And rich am I on the desert's wage.

• • •

SYMPHONY OF SOLITUDE

By HUGH C. ROSS
North Hollywood, California

What brings this exultation
To awake my dormant soul?
What is this glad elation
That inspires an humbler role?
Here, a morning zephyr fans the sun-touched
trees,
Tinkling streamlet music blends with drone
of bees;
Cooling shadows shorten, point to azure
skies,
Where majestic mountains in stark grandeur
rise;
Open-hearted Nature hands to me her keys,
Tremblingly I take them—fall upon my
knees!

Comes then the adulation
Of unseen, angelic bands;
The tramp of past creation
Echoes from the desert sands;
Fairies' dancing footsteps rustle through the
leaves,
Fragrant dew of worship drops from heav-
en's eaves,
Droning prayers float upward from each
vale and hill,
Hallelujah chorus entrances until
Submerged by beauty, I fight its undertow—
Breathless, back I stumble to the world I
know.

Your Fate

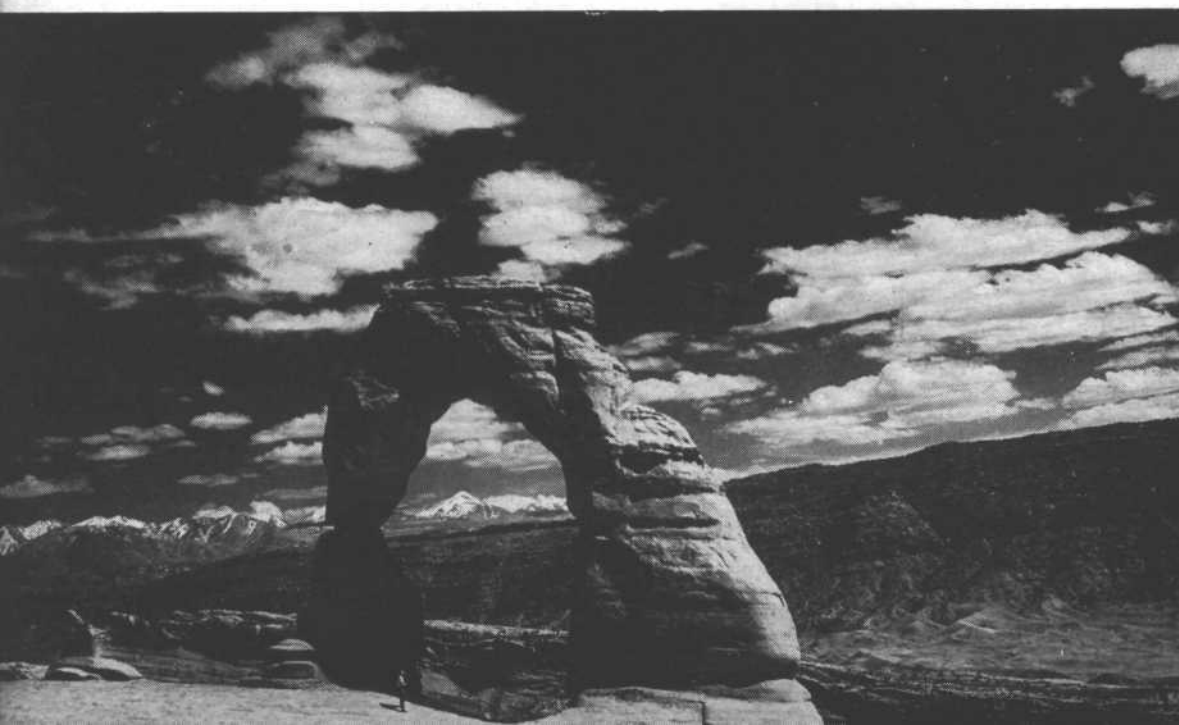
By TANYA SOUTH
San Diego, California

Live then for love and peace —
Not war and hate.
And let your fighting cease.
And your dire fate
Will change as change it must,
For naught withstands
The laws of Life so just,
And God's commands.

Pictures of the Month

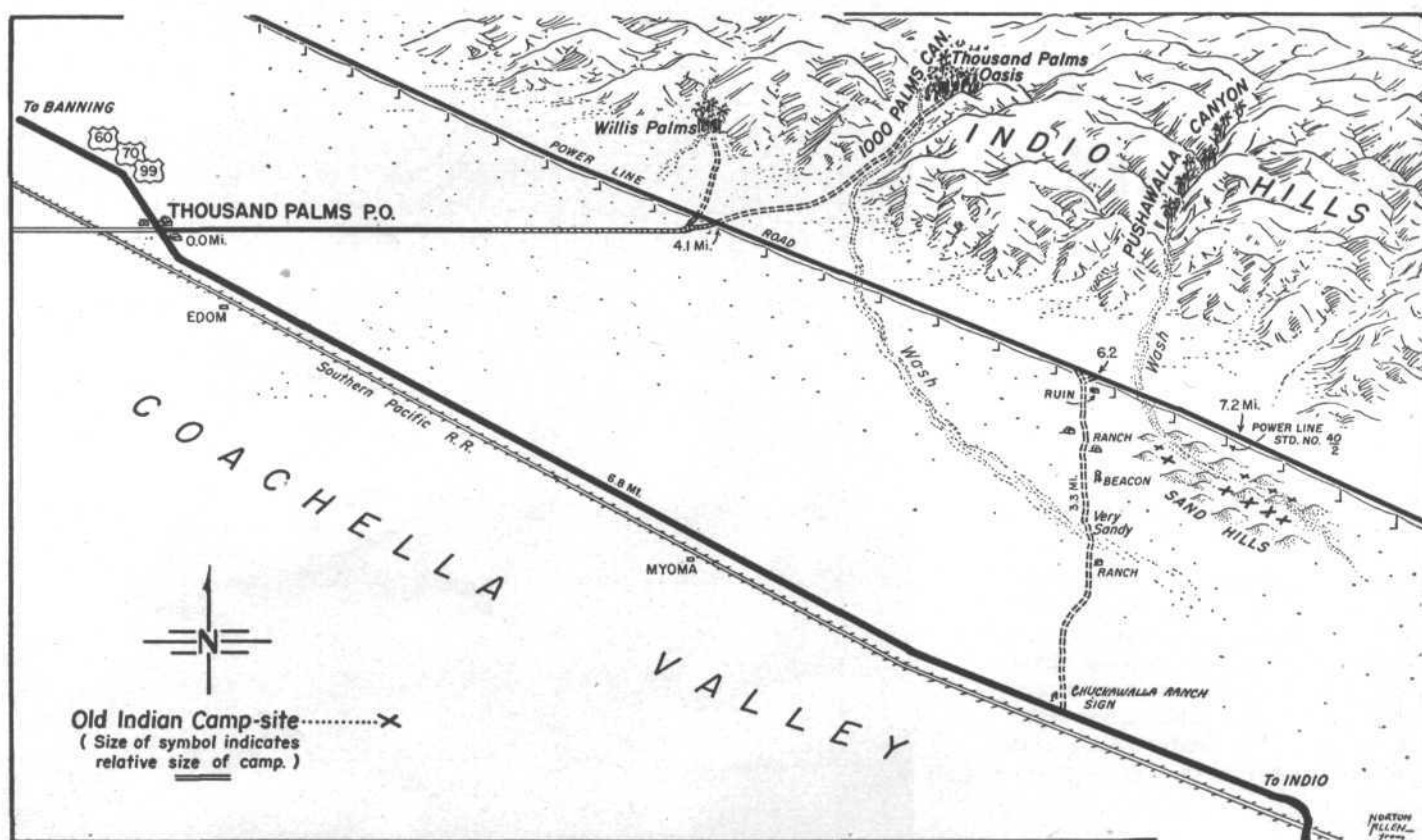
Death Valley Shadows

For his striking view of Death Valley, Hubert A. Lowman, South Gate, California, wins first prize in Desert's July photo contest. The picture was taken in early morning sunlight with high speed Panchromatic film, using A-25 red filter, 1/10 second at f.22.



Delicate Arch

Second prize was awarded to Art Riley, Burbank, California, for the accompanying photo taken in Arches National Monument, near Moab, Utah. Taken in May, 1949, with 4x5 Crown-Graphic camera, on infra-red film, 23-A red filter; 1/10 second, f.21.



They Left Their Story In the Desert Sands . . .

Often treated with contempt as lacking in courage and cultural development, the early California Coachella Indians were in truth a people of simple goodness whose gracious attitude in first contacts with the brusque white man was frequently mistaken for servile fear. But artifacts and other evidences of their way of life—including skillfully excavated wells—today tell the story of these early-day residents of California's Coachella valley. This story is interpreted here by a man who has made a close study of these appealing desert tribesmen.

By A. La VIELLE LAWBAUGH

WHEN THE COLONY of Georgia was a lusty two-year-old infant, a friendly tribe of Indians as yet unspoiled by contact with the white man had attained a comparatively high degree of culture in villages amid the shifting sand dunes at the foot of the Indio hills and on the floor of what is now Coachella valley, California.

Here was a people who under difficult conditions excavated and maintained wells in an arid region, giving proof of their skill and intelligence. Today village sites reveal to the diligent searcher many facts about the life of these aborigines.

One old Indian village site at the

mouth of Pushawalla canyon became our first goal when my wife Neva and I learned of it while visiting the Southwest museum in Los Angeles. It is not an ancient village. By archeological time scale it would be rated a recent occupation.

At the museum we met Ruth De Ette Simpson, assistant curator. She told us of a field trip once made to the Coachella valley, and identified the site as near Pushawalla. Later, in studying the maps of the area we found both Pushawalla and Pushwalla canyons, the former in the Indio hills and the latter six miles away in the Little San Bernardino range. A telephone conversation with Miss Simpson veri-

fied the Indio hills canyon as the proper location.

We rounded up our gear one Friday night and early the next morning set out on what was to be one of our most enjoyable desert trips. It was one of those wet foggy mornings when we left Los Angeles. Yet when Banning was reached, we emerged into glorious color and sunshine. This phenomenon has been experienced by us on several occasions at either Banning or Beaumont, yet we never cease to thrill at this "passing from under the curtain." Lovely Coachella valley was spread out before us to the southeast. An unknown adventure lay ahead.

We had decided to drive into the area from the south, leaving the main highway north of Indio near the railroad over-pass. The route led us across the power line service road to the county gravel pit. After passing what we assumed to be Biskra Palms, we began to watch for what might be the mouth of the canyon we were seeking, as well as for a stone house ruin mentioned by Miss Simpson.

It was one of those days when visi-

bility is practically unlimited, with a few high white clouds to offer contrast to the blue of the sky. In atmosphere sparklingly clear, San Jacinto proudly thrust high to the heavens while San Geronio to the north indolently sprawled full length. These mighty sentinels of the pass to the west still were mantled with snow. The fascinating green splashes of Biskra Palms and Willis Palms stood out boldly against the light browns and yellow outcrops of the strangely eroded Indio Hills.

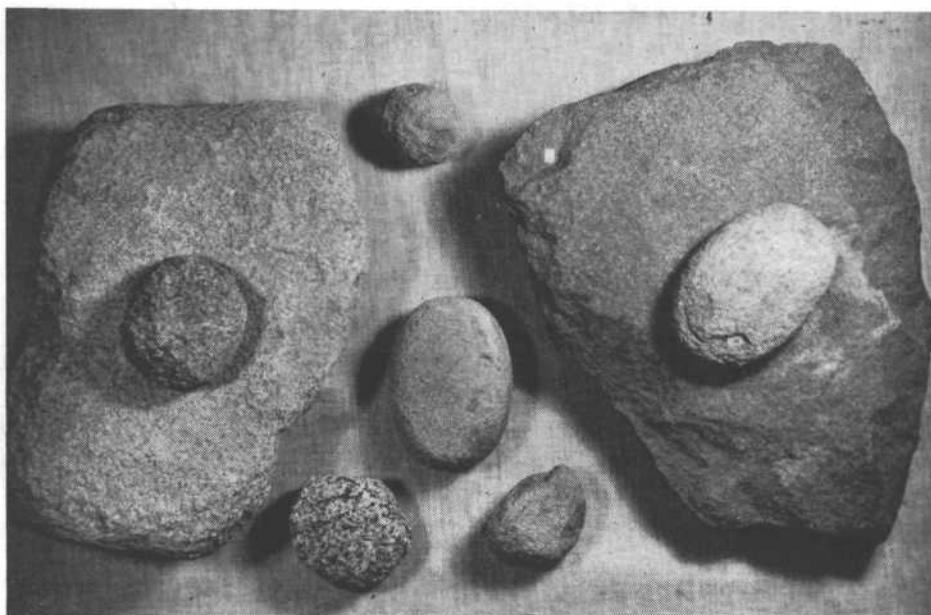
After a light lunch, Neva and I separated a short distance from the car and headed west with the sand hills as a general objective. We passed under the power line and tramped back and forth watching carefully for artifacts. Near the hills we crossed a wide swath of broken ground which stretched out of sight in either direction. We learned later that it was the pipe line which supplies the Los Angeles area with natural gas from Texas. Flint chips were observed at the pipe line but nothing tangible was found until the hills were reached. Neva made the first discovery, a small pottery shard.

We were at the fringe of a well defined camp area. Generally speaking, groups of scattered stones indicate such a site. The finding of flint chips, shards and bone fragments verify them as places of former habitation. Some of the larger rocks were used as hearth stones for they were smoke-blackened. Bits of charcoal and black ash in the sand indicated the comparatively recent date of occupation. Other rocks may have been used as anchors around the base of their shelters. Some were hammer stones. The full extent of the camp sites which comprise this old village was not ascertained on this first exploration. Pottery shards were in abundant evidence as were chips of chert, jasper and quartz. These last were the result of percussion and flaking techniques used in fashioning implements

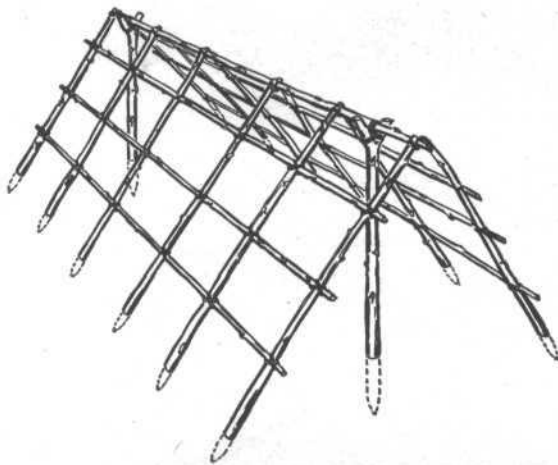
Top—Campsite of the ancient Coahuilla near the mouth of Pushawalla canyon in Coachella valley. Arrow points to two metates and mano as they were found by the author.

Center—Artifacts found at the campsite. Round weathered hammerstone at top between the two metates. A mano rests on each metate and three are shown below. The metate on the left measured 11x15 inches.

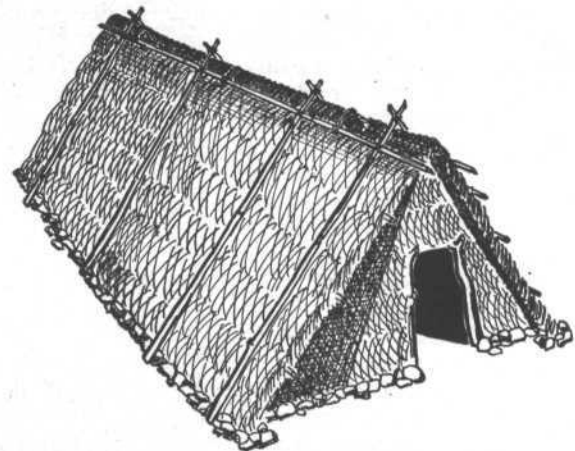
Below — Partially reconstructed olla. An attempt at decoration is seen in the impressions made in the lip of the vessel.



COAHUILLA KISH (BRUSH HOUSE) SOMETIMES CALLED
JACAL OR WICKIUP



FRAME-WORK



COMPLETED



A. Velle
1918

of stone. Large metates with accompanying manos were observed. Neva picked up an almost perfect triangular point. Two small fragments of pottery, broken directly through a drilled hole, were taken from one of the camps.

At one of the home sites a large number of pottery shards were found together. We carefully gathered and packed them in the hope that an olla might be reconstructed. Several evenings after our return were spent in assembling the shattered pieces without too much success, although the necks of two very graceful ollas emerged from the pile of shards. We noted an attempt at crude decoration in the impressions made on the lip of one of these. A large pot which may have been used for cooking also was partially reconstructed. The outside of all these pieces had been smoothed but the inside in many places still showed the finger imprints of the artisans of long ago.

Our day had been a full one. We decided to drive out to the highway on a trail we had seen near the stone house ruin. It led us by Chuckawalla ranch. We found this route extremely sandy and at one place had to push the car. On subsequent trips we found that it was convenient to turn off at Thousand Palms postoffice eastward towards Paul Wilhelm's Thousand Palms oasis. When the service road is reached, turn south to the village site.

Our visit had thoroughly fired our imaginations. In an effort to obtain additional information on the site we wrote to Lloyd Mason Smith of the

Palm Springs Desert museum at Palm Springs. He referred us to Edwin C. Walker, research associate of the Southwest museum staff. Extremely cooperative, Mr. Walker permitted us to take home for study his valuable copy of Dr. D. F. Barrow's paper *The Ethno-Botany of the Coahuilla Indians of Southern California*. Later, Mr. Walker helped classify the artifacts which we found at the site. We also secured A. L. Kroeber's *Handbook of the Indians of California* (Bulletin 78, Smithsonian Institution, Bureau of American Ethnology) and a *History of California* (5 volumes) by Z. S. Eldredge. Through these sources we learned something of the interesting life of the Coahuillas.

The most impressive accomplishment was the ability to dig and maintain wells. The Coahuilla wells were great pits with terraced sides, based on the natural repose of the ground material, leading down to a narrow hole at the bottom. The hole was fashioned

in such a way that an olla might be dipped full of sparkling water. The deeper it was to water the larger, of course, was the excavation. They called their wells *tema-ka-wo-mal-em*, literally "earth water olla." Many of these wells were still visible 50 years ago as wide pits partially filled with sand.

Another type of Indian well has survived even to the present day. This is a dug well with a trench leading down to the water level on one side. One of these wells may still be seen near Santa Catarina spring in Collins valley in the Anza Desert State park of California. Another of these was photographed on the Torres Indian reservation in Coachella valley in 1903. This type of well was possible only in clay or adobe soil—not in sand.

This village of the ancient Coahuilla must have been a happy one. Adequate shelters (wickiups) made from the branches of greasewood (*o-ot*) and willow (*sak-hat*) were scattered in and around the hummocks. Their word for shelter or wickiup was *kish*. Just to the west of the village was the probable location of the well.

The women were busy at many pursuits. There were always the seeds of sage (*pa-sal*) and the fruit of the mesquite to be gathered and ground. A soaked meal called *pe-chi-ta* was made from the latter. The honey mesquite (*prosopis juliflora*) bears fruit, a legumen four to seven inches long, which hangs in clusters. They carpet the ground with straw-colored pods. These

COAHUILLA and CABEZON

In this story the author has used the spelling of an earlier period. More recently Coahuilla, by common usage has been shortened to Cahuilla. Cabezon has changed to Cabazon in the naming of a town along Highways 60-70-99 in San Geronio pass. When Dr. David F. Barrows was making his study of the Coahuilla Indians 50 years ago he often referred to Coachella valley as Cabezon valley. The name comes from an Indian chief who lived in the pass country.

were gathered in July and August, dried thoroughly and pounded into an imperfect meal in wooden mortars without separating the seed or bean from the pods. The meal was soaked to make it ready for eating. Baskets were made from reeds and sometimes lined with bitumen secured from the coastal tribes or possibly from a seep which occurs up nearby White Water canyon. Their deft hands formed graceful ollas and large pots without benefit of the potter's wheel. They did not always paint their ware but sometimes attempted decoration by impressing and scratching with sticks and twigs.

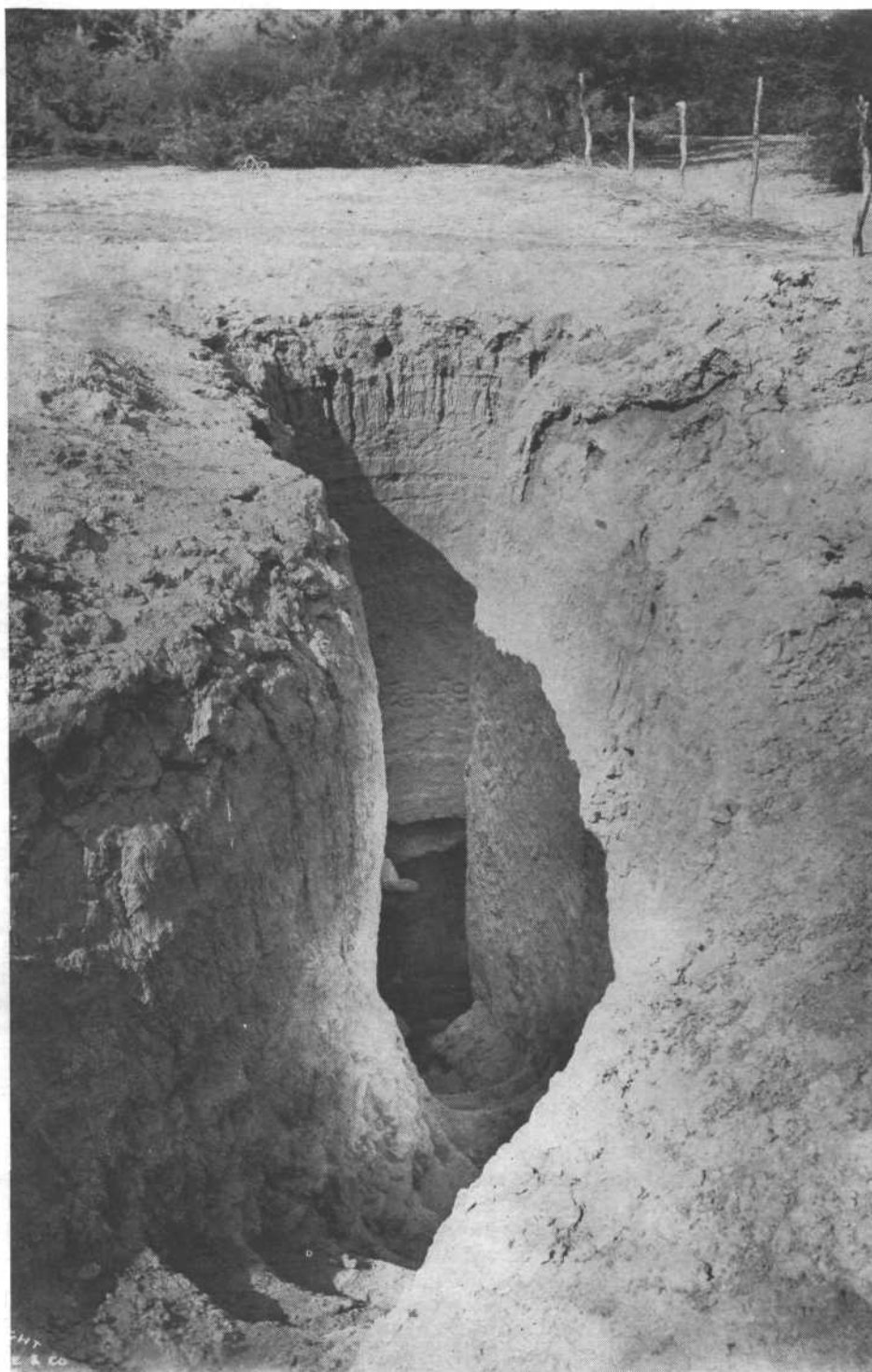
The men stalked deer in the nearby hills. Deer skins were their principal source of material for clothing and foot-gear. The meat from a deer supplied the whole village for several days. They hunted rabbits and the winged creatures of the area. Some had time to shape and drill beads for barter and ornamentation. Highly finished and grooved arrow shaft straighteners were made from serpentine and other rocks. New shelters were built and old ones repaired as a natural cycle of living.

Thus lived the Coahuillas in their little village at the mouth of Pushawalla canyon in the Indio hills. It was abandoned more than a century ago, some time before the Pacific railroad survey passed through the valley. Some of the inhabitants moved into the Banning area, at Potrero. Others moved into the mountains to the southwest at Santa Rosa and San Ignacio. Perhaps they left because of a series of unexplained deaths. These people had a superstitious concept of death which is difficult for us to understand. Perhaps these semi-nomadic people just wanted a change of scene.

Neva and I, sometimes accompanied by friends, have made many trips to the site and have there experienced many moods of the desert. We admire and respect this place of hidden promise . . . of sameness . . . yet of strong contrasts.

On one of the return trips to Pushawalla I found some large thick pieces of bright orange ceramic material, smoke-blackened on one side. Several opinions have been expressed as to the original form and use of these broken remnants. Their thickness and curvature indicate a general hemispherical form which may have been an oven similar to those still in use today at Acoma and Taos, in New Mexico.

On another such trip a perfect little bird point was found in the midst of a group of bones which were almost reduced to powder. In this instance it was easy for us to imagine a Coahuilla youth on one of his first hunts in the sand hills north of the village. Perhaps



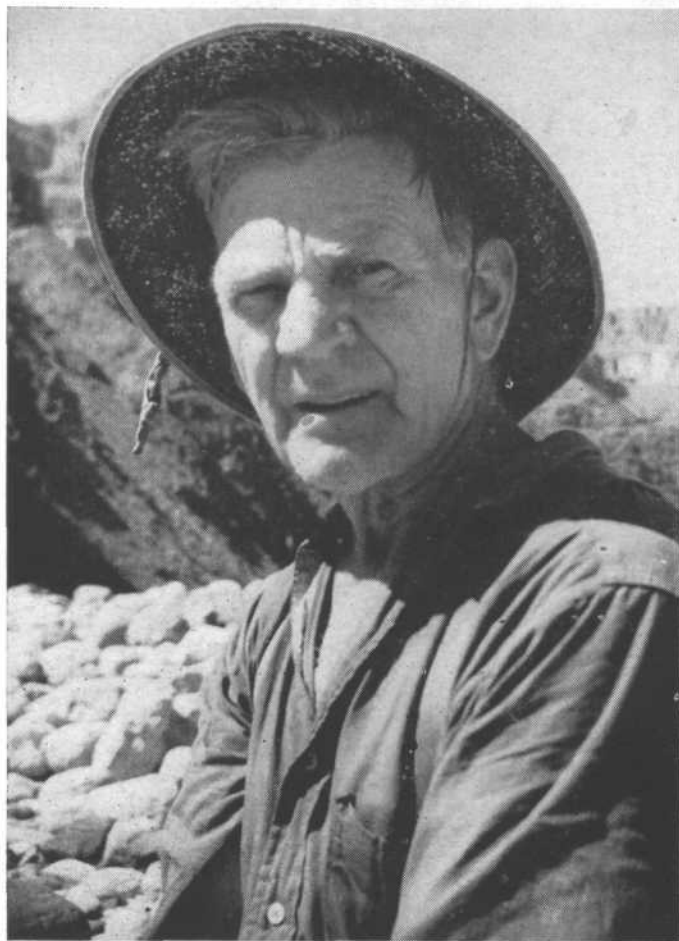
*Old Indian well on the Torres reservation in Coachella valley.
Photo taken in 1903. From the C. C. Pierce collection.*

just at the moment of releasing an arrow his aim was disturbed by a sand laden gust of wind. The quarry was struck but it was not a kill. The large bird half flew, half flopped and beat its way, dragging the imbedded arrow. The lad probably tried to overtake the bird which fought for survival with its thrashing wings. It must have been almost dark for otherwise the boy would hardly have abandoned the chase. The failure to make a kill and the loss of

a point were two items not lightly viewed by these people.

The Pushawalla village site has given us many such thought-provoking discoveries. We have had the pleasure and opportunity of visiting sites from Old Mexico to Wyoming and from California to Missouri. None of them has offered more intriguing possibilities than this old site which lies across the Coachella valley floor from Palm Springs.

He Died on His River...



"I want to go down with the river."

"IF I WERE TO DIE tomorrow, I would want to die on the river."

That was Bert Loper's answer to the advice of his physician who warned him against again attempting to run the rapids of the Grand Canyon of the Colorado.

The end that Bert Loper had wished for came on July 8. He would have been 80 years of age on July 31. What he had planned as his final bout with the rapids of the Grand Canyon was in truth the last boat trip for this veteran river runner who had more than 50 years and 7000 miles of rapid-shooting behind him.

Evidence indicates that a heart attack and not the river finally conquered Loper. His dramatic end came about an hour's run from Navajo bridge at mile 24½ below Lee's Ferry, Arizona. What probably occurred is described by Otis (Doc) Marston, himself a river veteran, in these words:

"Bert was wearing a life preserver and carrying a passenger as his boat went into the rapids. Wayne Nichols of Salt Lake City was a passenger. Nichols reported that Loper appeared to be frozen in position and it seems fair to conclude he was stricken by his weak heart. The boat went into the tail waves of the rapid out of control and capsized. Nichols got onto the upturned boat, finally made it to shore. He saw Loper's body go by and there was no struggle."

Marston reports further: "I saw Loper July 1 and know that he was aware of the excessive risk he was running.

There was no use talking with him to suggest that he turn the oars over to a younger man."

Bert Loper was born in 1869, the year John Wesley Powell made the first trip of record down the rapids of the Green river and on through the roaring chasms of the Colorado. He grew up in Missouri, crazy about boats and rivers.

His first actual river work was on the San Juan, a tributary of the Colorado, during the gold rush of the 1890's. The San Juan was a good training school.

After that Bert was never long away from the rushing rivers of the Southwest. In 1907 with Charley Russell and Ed Monette he started on an ambitious trip from Greenriver, Utah, with Needles, California, as the goal. This attempt was doomed to failure, Loper then spent seven years as a virtual hermit at Red Canyon on the Colorado, was on the river in his boats every day.

In 1914 Charley Russell talked him into another river trip. The boat Russell provided was inadequate, they lost it in Cataract canyon. From there they walked 70 miles to Hite under worst possible conditions, staggered into the little settlement near death from starvation and exposure.

This experience put a damper on Bert's enthusiasm for only a short time—during which he married Rachel Jamison, a bonny lass straight from Scotland. But even a new wife couldn't keep a river man at home.

Ellsworth Kolb wrote and wanted Bert to go down the Black Canyon of the Gunnison in Colorado with him. They did, and then finished off on the Colorado river, running the rapid at Cisco pumphouse which has claimed several lives.

Domesticity then claimed Bert for several years. His next river work was as head boatman for U.S. government engineers who made preliminary surveys of Boulder canyon in 1920 to get information for construction of Hoover dam. This time he covered the Colorado from the mouth of the Virgin river to the Gulf of California.

In 1922 Bert ran the Green river from Green River, Wyoming, to Greenriver, Utah—400 miles of white water through Flaming Gorge, Red canyon, Ledore, Whirlpool, Split Mountain, Desolation and Gray canyons. Major Powell had given the narrow canyons their expressive names.

After other Colorado river trips, he and a companion boated the Salmon river in Idaho in 1936, a river that has claimed almost as many lives as the Colorado.

In 1938 while Bert was in the veterans hospital in Salt Lake City, Don Harris came to talk boat with him. That began a lasting friendship, and it was Don Harris, U.S. geological survey engineer, who telephoned news of Bert's death this summer to Mrs. Harris in Salt Lake. Harris was with him on his last trip.

It was with Harris that Loper made his first trip through the Grand Canyon. For more than 30 years he had stopped at Lee's Ferry, looked wistfully down the river, but had always been prevented from going farther. His trip with Harris was a success.

In 1940 Don and Bert put in at Green River lake in Wyoming and ran to Greenriver, Utah. This completed the entire Colorado river system for Bert—from Wyoming to the Gulf of California.

Then came his final trip. It was to be from Lee's Ferry, Arizona, to Pierce's Ferry, Arizona—through the Grand Canyon again.

But the exertion and excitement proved too much for Bert Loper's failing heart. He died as he had lived—with the roar of raging rapids in his ears.



Clark County gem collectors in the field. There were seven such groups cooking breakfast in the canyon near Nelson, Nevada, when this picture was taken. Left to right, standing: Myrtle Mercer, Dora Tucker, Ruth Rousey and Dee Petrie. In front: Paul Mercer, Irma Macdonald and Ivins Macdonald.

We Look for Pretty Rocks . . .

Boulder City, Nevada.

Desert Magazine:

We read in *Desert Magazine* about the various gem and mineral societies, but not much is said about the struggles and disappointments the mineral collectors go through in perfecting their by-laws and securing a working organization. Perhaps the experience of the society of which I am a member will help others in solving their problems.

Our group here in southern Nevada is unique in its method of operation. Many of our members had previously belonged to societies with high-sounding and meaningless names, only to

discover that they cared nothing for the rules and regulations as laid down in the fancy constitution and by-laws.

These persons wished only to enjoy the out-of-doors with others whose purpose was a picnic and tramp across the hills to find what there was to find, and to see what there was to see. They were not interested in listening to a professor orate on the mineral or chemical content of certain geological strata.

I believe it is safe to estimate that 90 per cent of all members of all mineral and gem societies joined those societies with only one idea in mind—companionship in the field. Yet the

other 10 per cent are eager to force study and knowledge down the throats of these people. We know societies whose slogan is similar to this—“to further the Earth Sciences.”

So they get a Geiger counter, and the 90 per cent find about as much use for it as if they suddenly had been presented with a Brontosaurus with three heads. “To Further the Earth Sciences” indeed. By whom? And how? Certainly not by the 90 per cent—and we doubt whether the 10 per cent has any notions either. The result is that the 90 per cent finally is seen less and less at meetings and field trips. Oh no, the society did not dwindle in membership—there are too

Hard Rock Shorty of Death Valley



"Yep! distances is deceivin' in this country," Hard Rock Shorty was telling the tourist who had stopped at Inferno store to buy cold soda for his party.

"See them mountains over there," and Shorty pointed through the dirty window to the Amargosa range. "You'd probably say they wuz five or six miles away—but if yuh started out with a burro it'd take yuh three days. I know cause I've done it many a time.

"Some o' these dudes never do learn how to figger distance in this country. Take them two fellers who came up here awhile back lookin' fer a site for a sanitarium. They hired me to take 'em up Eight Ball crick to them alum springs.

"I'd been trying to teach 'em how to estimate distance in this Death Valley country, but they didn't catch on very well. When we got to the spring we ran into ol' Paiute Pete, that renegade who allus comes over to Death Valley when he gets in trouble up Nevada way.

"We walked around a big rock, and there was Pete standin' there as if he was froze. Pete looked kinda hostile, and the dudes wanted him to know they wuz friendly so one o' them walked up and said: 'Do you live here?'"

"Pete didn't know a word o' English, and he ain't very talkative anyway. He jes' stood there glarin' at the dude an' sayin' nothin'.

"Then the dude raised his voice louder and asked again, 'Do you live here?'"

"Pete never even grunted, an' the dude looked kinda startled. Then he shouted as loud as he could, 'Do you live here?'"

"Pete never moved a muscle, an' then that dude turned around lookin' kinda sheepish and said to me, 'Mister Hard Rock you're sure right about them distances. I thought that Indian was standin' right there in front of me. He musta been further away than I thought'."

many seeking this relaxation and companionship, and it takes a little time to become sour.

This is where the Clark County Gem Collectors left the track. We were determined to have "a Sunday Picnic Group Who Look For Pretty Rocks." And do we have it? Read on. Clark County, Nevada, is a gem collector's paradise. We do not have to travel any farther than we want to find almost everything except Nephrite jade. Our blue agate we think is the finest anywhere, and there is also green, pink and the deep honey colors. Quartz crystals are well terminated but small.

Jasper? Any kind you want, Petrified woods and moss agates. Geodes—just take a boat trip with us up or down the Colorado river from Emery's landing near Nelson and you will throw away all those you find at the Houser Beds. Along the Colorado also are the curious sand spikes—soon to be covered by the waters behind Davis dam. And do you collect Indian relics and fossils? Ah, ha—we knew it, but you have to be one of our picnic group to know where they are.

Our history is simplicity itself. It goes like this. On March 13, 1948, a small group of 17 persons met in one of the recreation rooms of the Grace Community church, Boulder City, Nevada, and decided to have "A Sunday Picnic Group Who Look For Pretty Rocks" and who would call themselves The Clark County Gem Collectors. Never would we have any constitution or by-laws; no president, vice president, secretary, treasurer, board of directors, charter members, field trip director, publicity chairman, refreshment committee, entertainment committee, librarian (stop here—the list is endless). There would be no dues.

We needed no money, as we believed the best things in life were free. We would meet once each month for a potluck supper at the home of any member who volunteered to have us. At that supper we would plan the trips for the coming four weeks. See—even postage was needed.

Those who happened to miss the supper were informed by word of mouth. The member who opened his home for our supper furnished only the coffee, cream and sugar—the rest brought their own cups, plates and silver. We also brought food. The term jackpotluck supper would more aptly apply—because we surely always hit the jackpot. We have seen several of these suppers where we know extra reinforcement was underneath the board to keep the table from breaking in half.

In addition to all this we got to see

our host's rocks and lapidary equipment. It is always amazing to view the various ways people collect, and the things they collect. We each prize our individual pile of junk.

One of our members (well past 50) had asked to be hostess. She washed and dusted and sorted her collection so that it would make the best possible impression on all of us. She spent days going over each individual piece, and filled boxes and baskets in the alley with that which was discarded. Came the potluck day and her display fascinated all with its beauty.

Some weeks later I had occasion to visit this woman and noted with alarm that her collection did not seem to be quite the 100 per cent I had remembered it to be. She must have read my mind for she remarked: "Don't look at all that stuff. I threw it out once, but every time I took out the garbage I saw a rock on the pile that looked pretty good—now I have them all back in the house again." And I doubt if she cares whether her collection is orthorhombic, monoclinic, triclinic or tetragonal. She just says, "Aint that purty?"

Every story has another chapter. Ours is that the group has grown. Today we have 68 active persons all bringing food to the suppers. Yes we had to seek larger quarters too. Our membership is drawn from Las Vegas, Henderson and Boulder City. In Las Vegas two of our members own their private museums. And any other member may use them when playing host. In Boulder City we now have to rent the American Legion hall to accommodate the gang. With kitchen privileges it rents for \$7.50. Each person who attends the supper pays 10 cents to the host. To date no host has been out more than 60 cents. Nice? For 60 cents who would clean the house before and after such a party?

Whenever we hear of any society within the radius of 350 miles holding a show, we get together and plan to attend. We don't want to miss anything. You have no idea how much fun these trips are. We are truly a happy group, and we think it is too bad that so many societies are burdened with their restrictions and needless ceremonies.

Note the enclosed picture taken on one of our field trips. See what a bunch of old people we are? Some didn't make it due to the roads and the unusual desert weather, but those who were there had fun and went home with some pretty rocks and full tummies.

PAUL MERCER.

HERE AND THERE ... on the Desert

ARIZONA

Bones of Midget Camel . . .

TUCSON—The bones of a midget camel that died more than 5 million years ago are being studied by University of Arizona zoologists following discovery of the remains in the Milk Creek region of the Hassayampa drainage area, 25 miles east of Prescott. The bones were found imbedded in a sandstone rock. Dr. Charles A. Reed, of the university's zoology department, was in charge of the party which discovered the bones. Also unearthed were bones of a dog the size of a present-day black bear, and bones of a saber-tooth cat, about half the size of the mountain lion which is found in northern Arizona mountains.—*Yuma Daily Sun*.

Becomes Medical Missionary . . .

A year ago Dr. Robert B. Starr, a successful young physician of Salisbury, Maryland, read of the need for medical skill among the Navajo Indians. He flew to the Ganado Medical mission on the reservation to investigate the situation. What he found on the reservation impressed him so deeply he has given up a \$25,000 a year medical practice to accept a \$2700 position as medical associate at Ganado. His wife and five daughters, ranging from two months to seven years, accompanied him on his medical mission. Friends and neighbors at Salisbury presented him with a 10-seat station wagon to serve his private needs and as an ambulance at his new station.

Odd Crystal Deposit Found . . .

VERDE—Listed by Dana's textbook as thenardite crystals, an interesting and unusual deposit of crystals has been discovered in the foothills along the Middle Verde river. Ruby Minter and Loutetta Drye made the discovery while horseback riding. Most of the thenardite has weathered out of the crystals, leaving them limestone pseudomorphs. Mr. and Mrs. E. E. Michael, vice president and secretary of the Yavapai Gem and Mineral society, Prescott, have collected a group of the crystals.—*Verde Independent*.

Regional Forester Passes . . .

FLAGSTAFF—Ill since December, Phillip Verne Woodhead, 57, regional forester for Arizona and New Mexico, died at Albuquerque, New Mexico, July 26. He had been in this region since 1939, was made regional forester in 1945.—*The Coconino Sun*.

Students Unearth Ruins . . .

POINT-OF-PINES — University of Arizona students, members of a summer party located 100 miles east of Globe on the San Carlos Apache reservation, are unearthing new archeological finds as they work in new excavations three miles from digging spots developed during the past three years under supervision of Dr. Emil W. Haury, director of the Arizona State museum. Using the new discoveries for cross-checking, they hope to date the Point-of-Pines ruins to 400 A.D. Relics previously found have dated the ruins to the sixth century. The Point-of-Pines ruins, on Circle Prairie 6200 feet high, show the overlapping of three prehistoric Indian cultures: the Mongollon, or mountain culture; Anasazi or pueblo culture; the Hohokam or desert dwellers. Indians abandoned the region in 1400, it is estimated. Just why the tribesmen left their homes, their fertile fields and this region of Arizona abounding in game is still a puzzle to archeologists. It is believed it will take 12 to 15 more summers of work to complete study of the ruins being excavated.—*San Pedro Valley News*.

WASHINGTON — First attorney ever assigned by the government to the Navajo Indian reservation assumed his duties August 1. He is William J. Truswell, former assistant U.S. attorney at Albuquerque, New Mexico, is now attorney for the Navajo Indian agency at Window Rock, Arizona.

WILLIAMS — Plans for development of the North Kaibab section of the Kaibab National forest are moving ahead with survey for a new road from Ryan to Fredonia, Arizona. This portion of the Kaibab forest has lain virgin for many years.—*Williams News*.

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THE *Desert* MAGAZINE
Palm Desert, California

ARIZONA MINERALS by A. L. Flagg. The Rockhound and his hobby. What, where and how to collect, identify and care for specimens. How to enlarge collection. Common minerals of Arizona with complete identification key. Common rocks of Arizona with table of igneous rocks. The amateur Lapidary. Mineral Societies, Biography and complete list Arizona minerals. \$2.00 postpaid anywhere U.S. Fred Wilson, 25 N. Central Ave., Phoenix, Arizona.

FOR SALE—9 vols. of Desert Magazine, 7 in binders. Dec. '39 to '48, \$25.00. T. W. Tennant, 1539 Brockton Ave., Los Angeles 25, Calif.

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MISCELLANEOUS

DESERT MAGAZINE STAFF is seeking a good photograph of the late Frank Coffee, veteran prospector of Dos Palms spring, California. If any of Desert's readers have such a picture, a letter will be appreciated advising as to the size and clearness of the photo.

SILVER DESERT HOLLY PLANTS. One dollar each postpaid. Greasewood Greenhouses, RFD, Barstow, California.

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20 OLD WESTERN outlaw photos, \$1.00. 20 different Old West, Pioneer, etc. photos, \$1.00. 10 different battle of Wounded Knee 50c. 5 different Lincoln 25c. Lists 5c. Vernon Lemley Store, 302 Dallas Ave., Mena, Arkansas.

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KARAKULS—Producers of Persian Lamb fur are easy to raise, adaptable to any climate or altitude. For further information write Addis Kelley, 4637 E. 52nd Place, Maywood, California.

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Hopi Attends Conference . . .

HOLBROOK—Native of Tewa Village on First Mesa, a Hopi Indian who was one of three North American Indians named as delegates to the second Inter-American Indian congress held at Cuzco, Peru, is now back at his home in Keams canyon. He is Albert Yava (Hopi name Youiyava, meaning Falling Rain), is an employe of the Indian Service at headquarters of the Hopi reservation. Cuzco, site of the conference, was center of the ancient Inca empire. Yava's contribution to the conference was to discuss relocation of the Hopis and Navajos from their reservations in northern Arizona to farmlands along the Colorado river near Parker.—Holbrook Tribune News.

THE IDEAL GIFT: Desert Diorama—three dimension cactus framed desert landscape, 6x8 \$3.00; 8x13 \$5.00. The "Special" 10x20, \$10.00. Diorama Studios, 1225 North Anita, Tucson, Arizona.

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Plan Village for Tourists . . .

WINSLOW—Construction of an "Indian village" as a tourist attraction for Winslow is being planned, first steps have been taken toward organization of a corporation. Floyd C. Whipple has been working on the idea of establishing in Winslow a shopping area patterned after Chinatown in San Francisco—only it will be Indian and scaled down to Winslow's size.—*Yuma Daily Sun.*

Meaning of 'Arizona' . . .

CHANDLER—How did Arizona get its name? One popular notion is that the state is an "arid zone." What appears to be a more reasonable explanation is this: to the Pima Indians "ari" means small and "zonac" means spring. The Indians named the area Arizonac and called it that for many years before the white man came. The Spaniards shortened the name to Arizona.—*Chandler Arizonan.*

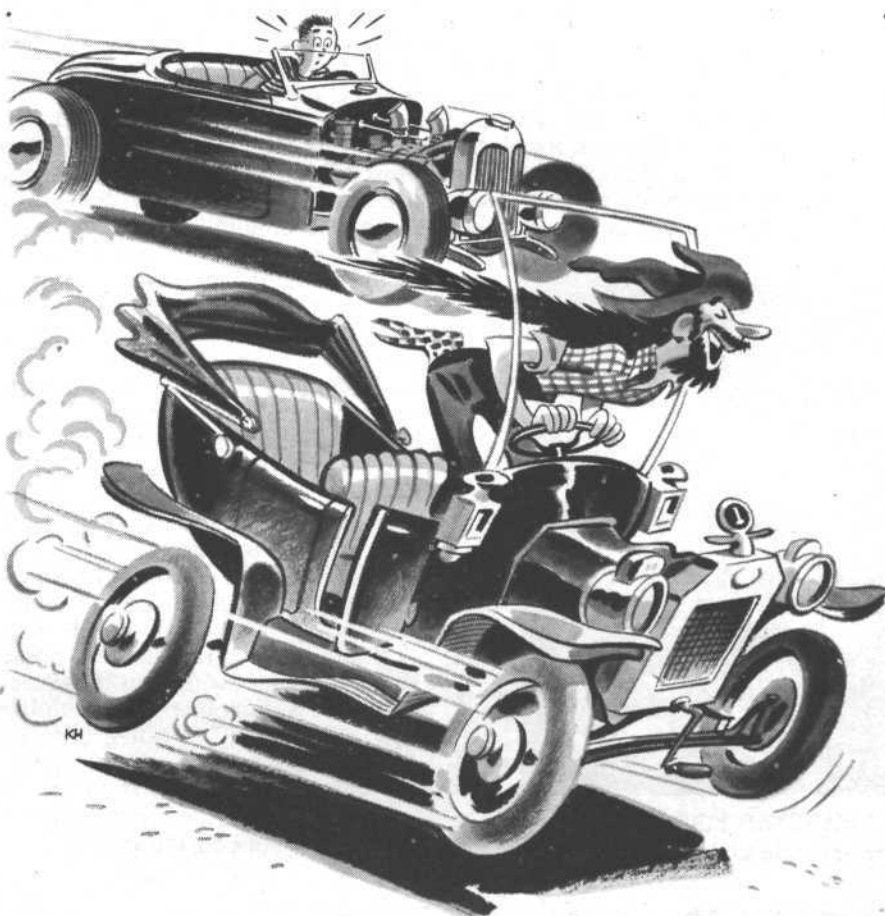
CALIFORNIA

'Gambling Den' Uncovered . . .

BISHOP—University of California archeologists believe they have proven that prehistoric Indians had their vices. At least they have discovered an alleged underground gambling den, its 45-foot main room complete with a large wall mural. The gaming establishment of the aborigines was located in Tommy Tucker cave, in Lassen county about seven miles from the Nevada line. Entrance to the cave is 200 feet up the side of Honey Lake valley, is effectively concealed from the valley floor. Indian artifacts found in the gambling house have been turned over to the Museum of Anthropology on the university's Berkeley campus. Most numerous artifacts in the cave were short wooden sticks sharpened at one end. The archeologists believe these were used as counters in various gambling games. Other gambling equipment included dice and matched tubes made of bone for shaking the dice. The mural was a series of primitive pictographs painted on a smooth space eight feet long and four feet high. Artifacts unearthed included fragments of baskets, sandals, arrow points, an awl and a needle, bone and shell ornaments.—*Inyo Register.*

Fossils in Death Valley . . .

DEATH VALLEY—Fossils estimated to be 25 million years old have been discovered by Dave Davis, Big Pine, while making a road in Death Valley. Clams, coral, fish and snails were unearthed by Davis. Other indications of sea life can be seen in the bed, which is said to be one of three known in the world.—*Inyo Register.*



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Desert Claims Unwary Victim . . .

A little-used stretch of desert road, about which motorists had been warned in the July issue of *Desert Magazine*, claimed a victim over the July 4 weekend. The tragedy occurred on the Yuha cut-off northwest of Calexico and a short distance north of the Mexican border. The cut-off runs near the base



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of Mt. Signal, across Pinto wash and skirts the Yuha badlands, connects with Highway 80 to San Diego. Miss Ruth Guben, 25, Los Angeles, succumbed to heat and exhaustion after the car in which she was riding with Morris Podus, 40, also of Los Angeles, got stuck in sand that had drifted across the unfamiliar road. After several hours' struggle to get the car out of the sand, the two gave up, started on foot toward Dixieland. After three miles Miss Guben collapsed. Podus left her and struggled on to reach aid. He made it to Highway 80, was picked up there by passing motorists, taken to El Centro hospital. Deputy sheriffs hurried out on the desert to look for Miss Guben, found her lying dead on the road three miles from the stalled car. Writing in *Desert Magazine* for July, Harold O. Weight described a field trip through the area and reported:

"Pinto wash . . . at this point is about 1000 feet wide, but its soft sand welcomes automobile wheels with unholy enthusiasm." Visiting the Yuha desert, Weight wrote, "is definitely a fall and winter pastime. In the summer there are few hotter, drier and more dangerous spots on the desert."

State to Help Pageant . . .

RANDBURG — The California Centennials commission will help to the tune of \$25,000 in raising the \$40,000 budget with which to stage the proposed Centennial pageant being promoted by the Death Valley '49ers for presentation in Desolation canyon. A contract has been signed with the Centennials commission. — *Randsburg Times-Herald*.

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Desert Once 'Land of Lakes' . . .

The sandy, arid area of California's Mojave desert and most of Nevada was once a "land of lakes," according to Dr. Carl L. Hubbs, professor of biology at the University of California's Scripps Institute of Oceanography. Collaborating with Dr. Robert R. Miller of the U.S. National Museum, Dr. Hubbs has published studies to show that the whole Great Basin area from the California High Sierra to the Wasatch mountains of Utah was once a well-watered region. During the great Ice Age and just following the retreat of the glaciers, numerous streams and lakes existed in this area, and it was inhabited by a wide variety of moisture-loving plants and animals. How long ago was that? "At a relatively recent time," say scientists, suggesting that it might have been during the late Pleistocene era, which ended about 20,000 years ago. — *Randsburg Times-Herald*.

Voters Approve Industry . . .

RIVERSIDE COUNTY—Voters of this desert-citrus-date and resort county approved July 26 an unregulated industrial zone on a 1700-acre tract near famed Palm Springs. It is an area set aside for construction of the proposed Guiberson cement plant. Opposition to the industrial invasion of the desert came from sections of the county in the desert, the plant won its support from the more populous areas of the county. Margin in favor of permitting unregulated industry in a specified zone was approximately 4 to 1. — *Indio News*.

NEVADA

Lehman Caves Improvements . . .

ELY—An elaborate indirect lighting system is now in operation in Lehman caves for the convenience of visitors, according to Max Wainwright, superintendent of the Lehman Caves National Monument. Lehman caves was set aside as a National Monument in 1923, boasts stalactite, stalagmite and numerous other types of cave formations. Temperature within the cave is 50 degrees, visitors are advised to bring a wrap as the tour requires about an hour. — *Ely Record*.

Indian Caves Surveyed . . .

REESE RIVER—Indian caves in this area are worthy of excavation and research. That is the conclusion of Dr. Arnold Withers, University of Colorado bureau of ethnology, who was loaned for the summer to the U.S. Geology survey. Roger Morrison is local head of the survey, which has its headquarters at the Wendell Wheat ranch near Fallon. — *Reese River Reveille*.



Report on 'Uranium Water' . . .

TONOPAH—Admitting that tests are "not conclusive," and that further experimentation should be carried out before conclusions are drawn, the *Times-Bonanza* nevertheless can report on what has happened to tomato plants fed with uranium-treated water. Two tomato plants, given the same start and same treatment with exception of the water provided, have been growing for several weeks in the newspaper office window. From the start the tomato plant receiving water treated with uranium ore made more rapid growth, today is double the size of the plant which had to be satisfied with plain faucet water. Stalks of the uranium tomato are stronger, leaves are greener, the plant has bloomed more heavily and is setting on more tomatoes than the un-treated plant. Other plants given uranium water have shown remarkable growth, but the newspaper makes no final claims. Government experts say that the uranium mineral, carnotite, will not dissolve in water. Editor of the *Times-Bonanza* says he won't dispute with the scientists, but he believes results of his tests warrant additional experimentation.

Bighorn, Domestic Sheep Cross . . .

AUSTIN—It was the sheeps' own idea, not the result of supervised cross-breeding, but Pete Elia has seven ewes in his flock which dropped lambs fathered by a wild Bighorn ram. Of the lambs born to the seven ewes early in May, three sets of singles and one set of twins have survived. Elia's sheep are pastured during the fall and winter in the New Pass area. It was there that the Bighorn ram won the fancy of the domestic ewes, mated with seven of them. The crossbred lambs are pinto colored, their wool is more like that of a mountain sheep, their tails are only a third as long as domestic lambs' tails. The story is verified by Clyde Madsen, assistant district agent of the U.S. fish and wildlife service, who says Elia hopes to show the lambs at the Elko county fair.—*Reese River Reveille*.

NEW MEXICO

Spectacular Cliff Dwelling . . .

ALBUQUERQUE—Hidden in a wilderness area still without roads, a spectacular Indian cliff dwelling high on the side of Gallina canyon has been discovered by a summer field party of the University of New Mexico's anthropology department. Announcement of the find was made by Dr. Frank C. Hibben, associate professor of anthropology at the university. Estimated by Dr. Hibben to be some 900 years old, the cliff dwelling is in two connecting

caves about 11 miles from Llaves, north of Cuba. Fourteen houses make up the ruin. Only access to them was through a crack in the cliff, thence by ropes to an outcrop of ledge. Dr. Hibben described this as "a kind of catwalk," built of masonry and adobe by the Indians centuries ago. It led around a shoulder of cliff to the dwellings. The catwalk crumbled and "atomized into dust" just as the last student was crossing it—coming out. The dwellings are well preserved in their sheltered cave location beneath an overhang of rock. Wooden beams were found still in good condition, also ordinarily perishable corn husks, wooden implements, cordage of twisted yucca fiber. The party named the ruins "Five Deer House," because there are five spotted deer painted on back wall of the larger cave. The site will be excavated next summer, Dr. Hibben said. Marks of fire indicate the dwellings may have been successfully stormed by enemy tribesmen in the distant past, the Gallina Indian inhabitants slain and their homes set ablaze.—*Eddy County News*.

Kit Carson Museum . . .

TAOS—The historic old adobe house which for many years was Kit Carson's Taos headquarters is now owned by the local Masonic lodge and is being preserved as a museum. Former belongings of the famous scout and relics of his period are being gathered together in the old dwelling, only a block from Taos Plaza. Both Kit Carson and Gov. Charles Bent were members of the Taos Masonic chapter, which is called Bent lodge.—*El Crepusculo*.

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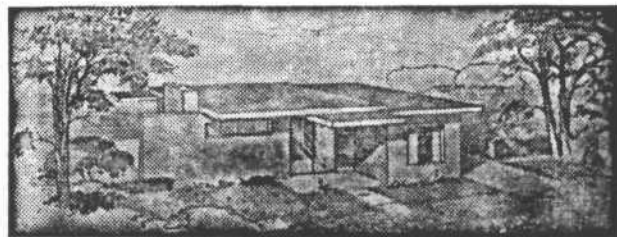
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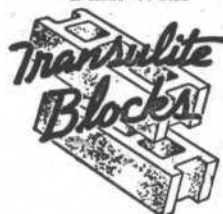
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UTAH

Scientists Visit Fossil Field . . .

DELTA—Five geologists from Case Institute of Technology, Cleveland, Ohio, recently visited the Ordovician fossil field at Ibex, 82 miles southwest

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Palm Desert, California

of Delta, under the guidance of Frank Beckwith Sr. and Emory John. Dr. Charles S. Bacon Jr. headed the visiting scientists. First day on the site the party worked for type specimens, the second day obtained a Crinoid stem to prove the presence of that creature in the territory. Animals—now fossils in stone—lived in the sea waters that covered the area between 300 million and 400 million years ago. The searchers found types (time markers) accepted as of that era and time. Receptaculite, Brachiopods, trilobite Pliomera and Crinoid stem were among specimens obtained. — *Millard County Chronicle*.

• • •

Travel to Arches National Monument has doubled each year for the past four years.

Tribute to Erastus Bingham . . .

SALT LAKE CITY—The man for whom Bingham was named never shared in the fabulous wealth yielded by one of the world's greatest mining centers. But his name is perpetuated on a marker recently set up by the Utah Pioneer Trails and Landmarks association on the lawn of the R. C. Gemmell Memorial club. It was in 1848, just a year after he arrived in Salt Lake City with one of the first pioneer companies, that Erastus Bingham stumbled on some ore-bearing rock in what is now Bingham canyon. He dug prospect holes, found more of the precious material. Bingham reported to the pioneer leader, Brigham Young. Orders were not to engage in mining nor to spread the word. Energies of settlers were needed to build homes, raise crops. Mining could wait. Bingham covered up the prospect holes. The family moved away, never returned to Bingham canyon where later was developed the world's largest open cut copper mine.—*Salt Lake Tribune*.

• • •

Young Trio Running River . . .

VERNAL—Scheduled to arrive at Lee's Ferry, Arizona, about September 1 after a 900-mile river trip from Green River, Wyoming, are two young men college students and a woman laboratory technician who are combining scientific study and pleasure in their two-month jaunt. They are Richard Griffith, Ft. Collins, Colorado, a geology major in college; James Clifford, Colorado Springs, archeology major at University of Arizona; Isabelle Galo, Milwaukee, Wisconsin. They are running the Green river from Wyoming to the Colorado river, then will follow the Colorado to Lee's Ferry. They left Wyoming July 8 in two boats. Gifford, in a plywood boat, capsized at Disaster Falls in Lodore canyon in Colorado. Boat and food supplies were lost, young Gifford escaped injury.—*Vernal Express*.

Prizes... for desert pictures

Desert Magazine staff is always looking for new and interesting pictures taken on the desert. Hence the monthly contest in which cash awards are made for the two best photographs. The winning prints are published as "Pictures of the Month." The contest is open to all photographers, regardless of place of residence — but the subject must be essentially of the desert country.

Entries for this month's contest must be in the Desert Magazine office, Palm Desert, California, by September 20, and winning prints will appear in the November issue. Pictures which arrive too late for one month's contest are entered in the next. First prize is \$10.00; second prize, \$5.00. For non-winning pictures accepted for publication, \$3.00 each will be paid.

HERE ARE THE RULES

- 1—Prints for monthly contests must be black and white, 5x7 or larger, printed on glossy paper.
- 2—Each photograph submitted should be fully labeled as to subject, time and place. Also technical data: camera, shutter speed, hour of day, etc.
- 3—PRINTS WILL BE RETURNED WHEN RETURN POSTAGE IS ENCLOSED.
- 4—All entries must be in the Desert Magazine office by the 20th of the contest month.
- 5—Contests are open to both amateur and professional photographers. Desert Magazine requires first publication rights only of prize winning pictures.
- 6—Time and place of photograph are immaterial, except that it must be from the desert Southwest.
- 7—Judges will be selected from Desert's editorial staff, and awards will be made immediately after the close of the contest each month.

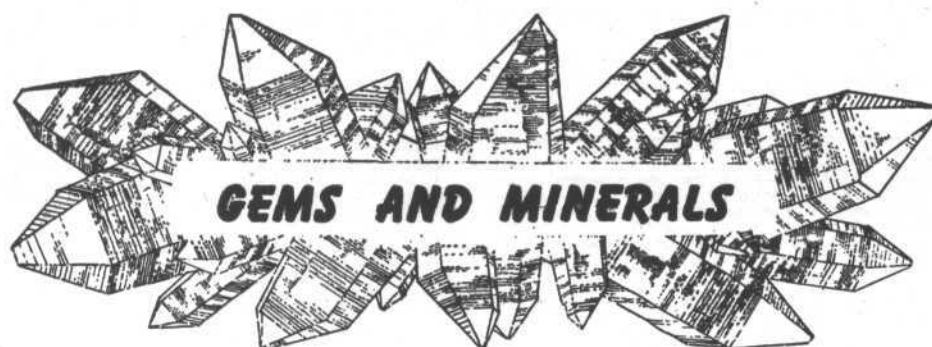
Address All Entries to Photo Editor

THE *Desert* MAGAZINE
Palm Desert, California

ANSWERS TO QUIZ

Questions Are on Page 14

- 1—Bisnaga, or Barrel cactus.
- 2—Mesquite tree.
- 3—Santa Fe.
- 4—Capt. Cooke.
- 5—Little Colorado.
- 6—Death Valley.
- 7—Zuni.
- 8—New Mexico.
- 9—Roosevelt dam.
- 10—Ed. Schieffelin.
- 11—Lizard.
- 12—Navajo.
- 13—Grass.
- 14—The navigation of Grand Canyon.
- 15—Navajo.
- 16—Encelia.
- 17—Calcite.
- 18—Pecos river.
- 19—Virginia City.



RANDBURG ROCKHOUNDS FORM NEW ASSOCIATION

Located in an area where collecting is good, and with a museum right at hand for ready reference, complete success is forecast for the newly-organized Rand District Gem & Mineral association. Mrs. Kathleen Jewell acted as chairman at the organization meeting. K. L. Coulson was acting secretary.

Officers elected to lead the group are: O. L. Jones, president; Alfred Hunt, vice president; E. S. Kirkland, treasurer; Mrs. Jewell, secretary. The organization started off with 30 members, is sponsored by the Kern chapter of the Western Mining Council.

The new group enjoyed participation in the "Mining Camp Celebration" sponsored by American Legion posts of the district, and had rocks and gems on exhibit.

Association members are expected to make good use of the Desert Museum at Randburg, California, where they can handle and inspect ores and gemstone materials right in the district where they occur. The Kern County Desert Museum is open Saturdays, Sundays and holidays from 9:00 a.m. to 5:00 p.m.

Not only rockhounds, but miners and prospectors may learn much by regular visits to the museum. New specimens are being added continually to the ore collection, and there is a growing reference library.

"How to Build a Rock Collection" was topic of a talk given by Ray Shire at the July 6 meeting of the Yavapai Gem and Mineral society of Prescott, Arizona. He told of sources of information, characteristics of a good specimen, kinds of rocks, fossils, fluorescent minerals and the identification of minerals. A chart and specimen rocks illustrated his remarks.

Floyd Getsinger talked on radio-active minerals, demonstrated how a Geiger counter works. Dwight Kemp, a visitor from the Tucson society, brought specimens of dog's tooth calcite crystals and Apache tears for distribution to club members.

Since summer time is picnic time, the Orange Coast Mineralogical and Lapidary society held its annual barbeque at Irvine park, Orange county, California, on July 18. The club is starting on its second year and boasts a membership of 115. It was organized by Howard Barnes, president, and a few friends who met in July, 1948, in the Barnes backyard for the first time. The society during the past year sponsored a Lapidary evening class at Orange Coast college where many learned to cut material they collected on field trips. Much of this work was displayed at the society's gem show in May at Laguna Beach. The society is also sponsoring a Junior Rockhounds group, which took a recent field trip to the Pala gem mines where specimens of kunzite and tourmaline were collected on the mine dump.

NEVADA STATE MUSEUM WILL GET SPECIMENS

Each member of the Fallon, Nevada, Rock and Gem club is to cut and polish a stone or gem from Churchill county and present it to the Nevada state museum, it was decided at last meeting of the club. It was a picnic meeting at the Harry Ringstrom home. Reports on the national convention at Sacramento were given by Mr. and Mrs. L. E. Peck and their son, David, and by Mr. and Mrs. Glenn Price. Mr. and Mrs. William Pierce told of a trip to Los Angeles and their visit to a museum there.

A sound and color motion picture film, "Beautiful Caverns of Luray," was shown at the July meeting of the Oklahoma Mineral and Gem society. Members of the society enjoyed a picnic at Dr. W. E. Flesher's summer cottage at Twin Lakes near Oklahoma City. The Rocky Mountain convention held in Albuquerque August 25-27 was discussed at the meeting.

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AMONG THE ROCK HUNTERS

NATIONAL FEDERATION ELECTS OFFICERS AT CONVENTION

Jack Streeter, Tujunga, California, will have his hands full during the coming year. He is president both of the California Federation of Mineralogical Societies and of the American Federation, having been elected at the joint conventions held at end of June in Sacramento, California. It was the second annual national convention, the tenth annual state convention. National officers elected along with Streeter are: Don Major, Tenino, Washington, vice president; Dr. Junius Hayes, Utah, secretary; Oscar Anderson, Bettendorf, Iowa, treasurer; Dr. Ben Hur Wilson, Joliet, Illinois, historian. State officers in addition to Streeter are: Robert Deidrick, Oakland, California, vice president; Ilga Hinsey, secretary; Modesto Leonard, Trona, California, treasurer. The convention and its accompanying gem and mineral show was declared to have been successful. Attendance was reported at 12,000, including registered members, paid admissions, delegates and officers, dealers and their personnel, and distinguished guests.

NORTHWEST ROCKHOUNDS TO HAVE CONVENTION

Dates of the convention of the Northwest Federation of Mineralogical Societies are September 2, 3 and 4, and the Eugene Mineral association is to be host to visiting groups. A Grab Bag and Auction is to be a feature of the three-day affair. Mrs. Merle G. Woodward, Eugene, is chairman.

A film on Mines and Minerals was shown by Warren Peverill, Fresno, at July meeting of the Sequoia Mineral society, Fresno, California. A potluck dinner was enjoyed at Reedley park in the evening. Sixty-four members and guests of the Sequoia Mineral society attended the Sacramento convention of State and National federations, it was reported. Two first prizes were won by local members. Ira and Emma Woolley earned firsts on flats, while Pete Eitzen was awarded first on transparencies. Of seven displays entered by Sequoia members, five won awards.

Herbert Grand-Girard, for the past several years editor of the society's publication, was unanimously elected president of the Chicago Rocks and Minerals society at a recent meeting of the group. Elected with him were: J. W. Pagnucco, vice president; Marie Holtz, recording secretary; Louis Holtz, treasurer; Helen L. Cooke, corresponding secretary; George C. Anderson, curator-historian; Oriol Grand-Girard, editor; Alice Wollin, co-editor. Regular monthly meetings of the society were adjourned for the summer, first meeting of the fall will be the second Saturday in September.

The mysteries of some of the 644 gemstone members of the six crystal systems and methods of their identification were explained to members of the Santa Monica Gemological society at their July meeting by Victor Arciniega, Los Angeles crystallographer. He told how certain tests distinguish natural stones from synthetics. A feature of regular meetings now is a trading post at each session.

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Yuma, Arizona, Kiwanis club members learned how collecting rocks can become an interesting hobby when Joseph W. Baker, an enthusiastic rockhound, showed colored slides of rock specimens and talked to the club at its regular meeting July 22.

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THUNDERSTORM ENLIVENS WEEKEND GEM OUTING

A huge bonfire and hot coffee helped members of the Dona Ana County Rockhound club, New Mexico, recover their high spirits after being soaked to the skin by a thunderstorm while on a weekend trip to a location on the Reid ranch of the North Percha area in the Black range. The group was guided by Mrs. Vernon Ruth, Mesilla Park, who grew up on the ranch and knows the productive locations. Most of the group went out early Saturday morning, returned home late in the afternoon, but those who camped overnight went out after dark with a mineral light to locate fluorescent and phosphorescent material in the creek bed. On Sunday other club members drove out and got in their share of rockhounding. This was declared one of the club’s most successful field trips.

The Ebelle club was scene of the July meeting of the Los Angeles Lapidary society. Victor Gunderson, new president, presided. A question and answer program proved to be very informative. The seventh annual show and picnic will be September 24 and 25, plans for it are now being made. Ted Schroeder is the society’s new corresponding secretary.

Annual potluck dinner of the Searles Lake Gem & Mineral society was enjoyed July 20 at the John MacPherson rancho in Homeward canyon. Entertainment included a motion picture, shown by Ralph Merrill, illustrating cutting and polishing. Roop Raj Peruhit of Rajasthan, India, gave a talk on gem stones which are found in his country.

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PACIFIC MINERAL SOCIETY SHARES PLAQUE HONORS

The Pacific Mineral society considers it did right well at the Sacramento convention. Again this year the society was out in front in competition for the plaque, sharing honors with the Southern California Mineralogical society of Pasadena. Thirty-two members of the Pacific group attended the convention in colorful '49er costumes. For its July field trip society members had a field trip to the collecting grounds in the Santa Rosa mountains, looking for specimens of andradite and cinnamon garnet, epidote, scheelite and sphene. In the evening Victor M. Arciniega, first president of the society and a prominent Los Angeles engineer, talked on the geology of the copper deposits of the Morenci, Arizona, district. Arciniega also conducts night classes in the earth sciences at Manual Arts high school, Los Angeles.

Hollywood Lapidary society members and friends enjoyed a recent field trip to the Palo Verde beach where some good cutting material was obtained. New officers have been elected for the coming year. They are: Russell E. Kephart, president; Eric Stone, vice president; Evinita New, treasurer; Gladys Entwistle, recording secretary; Ruth Kephart, corresponding secretary. The society’s second annual show is scheduled for October 15 and 16, location to be announced.

Kenneth McDowell, president; Charles N. Schwab, vice president; Mrs. Ruth Van de Water, secretary-treasurer, are the new officers of the Nebraska Mineral and Gem club (formerly the Nebraska Mineralogy and Gem club). The club has developed in the past seven years from a small group, meeting semi-annually, to a society of 70 members with an annual schedule of seven indoor meetings and three field trips.

On a recent trek members of the Mineralogical Society of the District of Columbia dug selenite crystals at Ft. Washington, Md., and collected cuprite specimens at Greenstone, Pa.

Three-day field trip of the Mineralogical Society of Utah was to Arches National Monument July 23, 24 and 25. The group collected solid agate from a shelf three feet thick and 60 feet long, inspected dinosaur bones and petrified wood which are plentiful in the area.

The Northwestern Mineral club of Traverse City, Michigan, and the Madison Mineral and Gem club of Madison, Indiana, have recently affiliated with the Midwest Federation of Geological societies, reports Oscar Anderson, Federation president.

The Gem Cutter’s Guild of Los Angeles is proud possessor of the first lapidary plaque to be awarded by the California Federation of Gem and Mineral societies. Presentation was made by Jack Streeter at the Sacramento convention. Having been accepted into membership in the federation only this year, it was first time the Guild had displayed its work in competition. C. A. Terry was display chairman. Meetings of the Los Angeles Guild are held on the fourth Monday of each month at the Manchester playground, 7:30 p.m., visitors are welcome.

CASUAL 'SWAP' REWARDS SEARLES LAKE MEMBERS

"One of the luckiest swaps I ever made," says Newell Merritt of the rare 10-karat star sapphire which he is having set in a ring. Merritt, active member of the Searles Lake Gem & Mineral society, traded some of his own material for the rough stone which another amateur gem collector showed him at San Bernardino, California. He does not know where the stone was found. Oscar Walstrom, also active in the Searles Lake society, was recruited for the delicate cutting job which resulted in two lustrous stones, one of which goes to Walstrom for his work. "It took me more than four hours each to cut and polish the stones," reports Walstrom. He used a facet cutting machine which he made himself, is self-taught. Merritt's star sapphire is of a rich blue color, the star flashes brilliantly, approximating in beauty the India sapphire. It differs in being somewhat softer than the true commercial gems. Walstrom says star sapphires are especially difficult to cut. A sphere must first be formed, then the axis of the star ascertained. This delicate process brings out full brilliance of the star.

Regular monthly meeting of the Long Beach Mineral & Gem society and monthly board meeting were both held in July in the Belmont Recreation center. "Gem Trading in Brazil" was subject of an interesting talk by Natal Montesanti. This followed by one month a program on Korea, put on by Bruce Taylor, a native of that country.

A new occurrence for siliceous oolite (quartz) is Salina canyon, Sevier county, Utah. Two specimens were picked up by a state road engineer at a spot 12 miles up the canyon from the town of Salina. One of the specimens was given to Dr. A. L. Inglesby, of Torrey, Utah, who sliced it in two. The slab consists of white oolites in brown chalcedony.

Clyde W. Tombaugh, chief of optical measurements at the White Sands Proving Ground, spoke to members of the Dona Ana County Rockhound club, Las Cruces, New Mexico, at their July meeting. Members gathered at the Brazito home of Mr. and Mrs. S. F. Sanders. Mrs. Mary E. F. Treasider was co-hostess. The speaker talked on meteors and planetoids.

SAN JOSE SOCIETY SEES MEMBERS' EXHIBITS

Program for the regular August meeting of the San Jose Lapidary society was a swapping bee followed by a roundtable discussion. The meeting was held at Alum Rock park with a barbecue dinner at 6:30. Displays at the August meeting were exhibited by David Burrige, Dr. A. J. Case, L. R. Cody, Al Cook and Lloyd Douglass. Scheduled to arrange exhibits for the September meeting are Otto Ehlers, Robert Elder, Mrs. Elder, Miss Alice Everett and R. J. Fox. The San Jose society won a gold cup as a special award for its exhibit at the National and State Federations convention in Sacramento. Raymond Addison won a gold ribbon as a special award for his cameo display.

The Tri-County chapter of the Western Mining Council held its annual picnic on the bank of the San Joaquin river near Friant. A crowd of 1600 enjoyed a number of interesting events. Miners' equipment was on display.

Second annual Lapidary and Gem Exhibit of the Hollywood Lapidary society will be held October 15 and 16 at Plummer park, 7377 Santa Monica boulevard, Hollywood, California.

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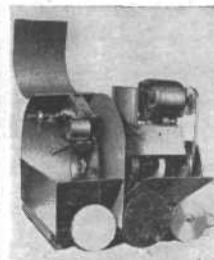
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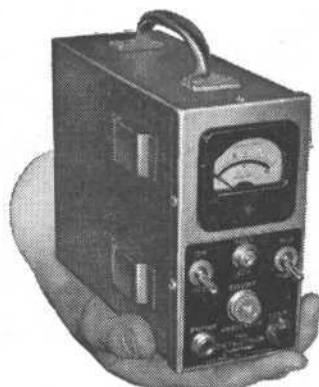
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AMATEUR GEM CUTTER

By LELANDE QUICK, Editor of The Lapidary Journal

The event that all lapidaries have been waiting for will transpire in September. It has been years since the Los Angeles Lapidary society had a show all its own. During the last two years they have held highly successful lapidary picnics to which all societies were invited and at which most societies were represented. This year they are going to hold a joint two-day picnic and show at the Montebello stadium in Montebello, which adjoins Los Angeles on the east and is about the geographical center of the county. All of the new groups the society has sponsored will have token case exhibits of their best work in addition to the always paramount displays of society members. Admission will be free as usual but the bars have been lowered on commercialism and Los Angeles county dealers will have booths to exhibit and sell their wares. There will be games of all kinds and western dancing on Saturday evening. The dates of this event will be September 24 and 25 and the address of the stadium is 1350 West Washington Blvd.

This is the type of show we have long shouted for—a lapidary fair. This will be an event at which there will be fun, gems, jewelry, food, dealers and plenty of machinery, gadgets, books, rocks and gem materials. There will be something to satisfy every one and it is in a location where people can spend the whole day and relax without getting all dressed up to visit a staid museum while the car is parked three miles away. No one who has ever been to a Los Angeles Lapidary society show will even think of missing it and if you have never been to one then you have a treat in store for you.

There is plenty of room so bring the family and gem-minded friends and stay all day. You can rest in comfort, then look and eat; then rest, look and eat some more and perhaps this time you can really get to see at least 50 percent of the many thousands of things prepared for your pleasure and enjoyment. Here is one event—the biggest of all—at which there will be no meetings, no lectures, no politics—just a monster rockfest.

Many of our eastern readers have written in the past asking the question "what shall we look for when we come to the desert?" That has been a question we have never had the time to answer. But now a smart dealer has come forward with the answer—a little box in which there are 12 stones, all found in desert areas: jasper, amethyst, opal, chrysocolla, garnet, jade, obsidian, turquoise, tourmaline, petrified wood and rhodonite. Admittedly some of these would be pretty difficult to find in the desert but this dealer is now working on a new box of jaspers and agate definitely found in desert areas and described in *California Gem Trails* (procurable from *Desert Magazine* at \$1.50). These boxes should prove of great assistance to the new rock hunter who is not familiar with the appearance of gem materials. They are quite inexpensive and we will tell you the name of the dealer—if you send a self-addressed and stamped envelope.

We frequently receive rocks from readers for identification (usually without even postage for a reply) but we do not identify

rocks. Many of these rocks come from eastern visitors who have gathered all manner of "junkite" on a hasty vacation jaunt to the desert. We promptly toss them away.

But occasionally we receive some really new and interesting material from desert dwellers who know something about rocks. We have no facilities for assaying or identifying rocks and we offer the following advice. If a prospector finds something believed to have value as gem material because of hardness, beauty and color he should send it to both his state bureau of mines and his state university for a double check. They are both more anxious to find a new gem material within their jurisdiction than is the finder. Information from these sources is dependable and carries the weight of authority and you have two opinions.

There has been a mad scramble for jade since the finds in Wyoming several years ago and since the remaining Wyoming jade has sky-rocketed in price because it is no longer easily found. People have an idea that any green rock is jade and we've had several packages of green rock sent us within the last year. Some of it has even been identified as jade by "authorities" who apparently don't know jade from a hole in a geode.

Here are several tests any person can use. Saw a generous slab from your green rock and suspend it with a string. Strike it with a heavy steel instrument, even a ten-penny nail. If it rings it's certainly worth investigating. Touch it to your cheek and if it feels cool, even in the 110° August desert temperature, then you can get more excited. When you get into town again get your druggist to order for you a pint of bromoform, for he probably does not stock it. When you finally get it, pour it into a quart milk bottle half full of water. In about an hour the alcohol from the bromoform and the water will get together as the bromoform goes to the top. Siphon the bromoform into a soup dish for a greater spread. Some of the water may come with it but it will stay on top for a bit and you should siphon it off immediately with an eye dropper. Empty the milk bottle and pour the bromoform into it. Now drop a chunk of your "jade" into it. Did it sink? Good! It's probably jade and worth the money you will spend to have a proper assay made. If it is just old quartz it will float. And remember—jade can be any color!

Some outstanding events are in store for rockhounds here and there over the country in the weeks ahead, following some successful conventions earlier in the summer. Here are a few of the events:

August 25-26-27—Rocky Mountain Federation of Mineral Societies convention, Knights of Columbus hall, Albuquerque, New Mexico.

August 26-27-28—Midwest Federation of Geological Societies convention, Public museum, Davenport, Iowa.

September 2-3-4—Northwest Federation of Mineralogical Societies convention, McArthur Court, University of Oregon campus, Eugene, Oregon.

September 24-25—Los Angeles Lapidary Society Gem and Jewelry show and picnic. At Montebello stadium, Montebello, California.



WILDFLOWER IDENTIFICATION FOR THE NATURE STUDENT

Many people would like to learn the common names of the flowers they meet along the way, without the necessity of acquiring a scientific knowledge of botany.

It is for these nature students that Carl Thurston wrote *Wildflowers of Southern California*. His classifications and descriptions are on a basis of color and form and general characteristics, and with accompanying photographs provide a comparatively simple system of identification.

When the perfect flower guide is published, it will show each of the flower species in natural color. But the cost of such a volume, if complete, would be beyond the means of the average person. The next best method of illustration is actual photographs in black and white—and Thurston has included 547 such photos in his book.

The book is composed of a series of tables on flowers, trees and ferns, and a plant may be identified by color, petal, stem or other distinctive characteristic. "You are not expected to know whether a plant is perennial or xerophilous, or whether its various parts are circumsessile, linear-setaceous, dichotomous, or scabrous-puberulent," explains Thurston in his introduction. "You simply read section after section, in order, until a simple description is reached which exactly fits the plant in question." The objective is not the imparting of botanical information but the supplying of a definite and dependable name.

The fitting of names to plants is not quite as simple as it seems to the beginner. But with discrimination and patience the keys become familiar in a comparatively short time. Two pages of brief definitions of technical terms is a real asset. The photographs are excellent, and the tables make it possible to identify many plants when petals and flowers have faded.

Esto Publishing Company, Pasadena, California, 1936. 412 pps., general and classified index, 547 photograph illustrations. \$4.00.

WESTERN LANDSCAPES SEEN THROUGH WESTON'S CAMERA

Edward Weston, one of America's great photographers, received a Guggenheim Fellowship for the making of a series of photographs of the West. When the trek was over Weston arranged to publish 96 selected photographs as a book. Mrs. Weston, who accompanied her husband as chauffeur and superintendent of supplies, and who faithfully recorded details of their travels and adventures, supplied the text. In *California and The West* she presents an informal and entertaining account of blistering days on the desert, fogbound days along the California and Oregon coast, and mountain snowstorms. Weston's photographs are excellent. However, title of the book may be misleading. Only a limited area of California and the West is covered.

Duell Sloan & Pearce, Inc. 270 Madison Av., New York 16, N.Y. 1940, 127 pps., 96 photos. \$5.00.

INDIAN LEGENDS IN VERSE

Edith Thurston Keyes, author of *Twilight Trail*, spent 18 years studying the tribal lore of the American Indian—the legends, the stories, the chants. The result is a volume of verse which she dedicates to the Youth of America, explaining that she compiled this material to be preserved in published form so that the twilight of memory may not fade into the oblivion of ages past.

The *Twilight Trail* opens with a verse from Longfellow's *Hiawatha*:

Ye who love a nation's legends,
Love the ballads of a people . . .
Who have faith in God and Nature,
Who believe in savage bosoms
There are longings, yearnings, strivings
For the good they comprehend not;
That the feeble hands and helpless
Groping blindly in the darkness
Touch God's right hand in that darkness
And are lifted up and strengthened:—

Listen to these Indian Legends . . .
And they are worth listening to.

Published by Trebes Printing Company, San Diego 4, California, 1948, 176 pps., original photographs by Carl O. Retsloff.

PRIMER FOR THOSE WHO WOULD PROSPECT FOR GOLD

"There is something fascinating about prospecting, something about it that will let you roam the hills all day or work feverishly digging a hole, and you do not know you are tired until you quit."

Because this is true, many hundreds of men—and occasionally a woman—with no experience in prospecting go out in the hills every year in quest of mineral wealth. And there are other thousands who would like to do so if circumstances would permit.

It is for these novices in the field of mining that Jack Douglas and Harold Mitchell have written *Gold in Lode*. It is a primer for the novice. A companion book to *Gold in Placer*, written by Douglas five years ago, the new manual covers a wide range of subjects: The identification of gold in ore, sampling, the initial steps in developing the mine, prospector's equipment, etc.

Illustrated with line drawings, the book

answers the three most important questions asked by the beginner in prospecting: "Where can I go to prospect, what kind of equipment will I need, and where can I get it?"

Published by the authors, Dutch Flat, California. 150 pp. Glossary. \$2.50 with paper cover, \$3.50 clothbound.

SAGA OF EARLY AMERICA WRITTEN IN BLOOD

History was written in blood with the point of the murderous Bowie-Knife. This all-purpose weapon was born of environment and probably necessity in the southwestern frontier of the early 1800's. History of the Bowie-Knife is the history of a young country struggling to grow. Although you might doubt that a man could write a book about a knife, Raymond W. Thorp is successful in his attempt because in tracing history of the weapon he at the same time relates the bloodshed and the growing pains of the West. The reader may think the author lays too much stress on correcting popular misconceptions about knives in general and the Bowie-Knife in particular, but he has a knack of making these things seem important. Not elevating literature, but if you like the unvarnished flavor of the rugged frontier, here it is in *Bowie Knife*.

University of New Mexico Press, Albuquerque, New Mexico, 1948, 153 pps., general and classified index, biblio., 8 illustrations. \$3.00.

SALTY COMMENTS OF AN OLD-TIME COWPUNCHER

"Literature is where you find it . . . literature is what it is and almost never what it ought to be."

These words of Bernard DeVoto might well be used to describe the writings of Frank M. King, cowhand author. He has written books, has been a columnist. Now a collection of his work has been published under the title *Mavericks*. Frank M. King writes of what he knows, for he was a cowhand for years, saw most of Texas, New Mexico, Arizona and much of California from his saddle. He knows the history of the West when it was developing, because he helped make that history.

In his writings King combines authentic history, dry western humor, down-to-earth philosophy. He knew most of the famous characters of the Old West—both good and bad. He tells about them from first-hand knowledge. *Mavericks* isn't deep reading, but enjoyable, has a flavor that rings true, gives history in easy-to-take doses.

Trail's End Publishing Co., Inc., 725 Michigan Blvd., Pasadena 10, Calif. 269 pps., index.

EDWIN CORLE'S NEWEST

"Listen, Bright Angel"

Edwin Corle's literary career, interrupted by his years of service in the Army, could not have been resumed more auspiciously than by writing this "Panorama of the Southwest."

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DESERT CRAFTS SHOP

Palm Desert, California



By RANDALL HENDERSON

MONTICELLO, UTAH—This is being written in a little log cabin on Ross Musselman's Four M Ranch near the base of the Abajo mountains in southeastern Utah.

Tomorrow 13 of us will be riding off on a 300-mile trail that for the next 19 days will take us over one of the least-explored regions in the Southwest, the colorful desert wilderness of southern Utah.

Musselman arranges this pack trip each year for outdoor people who find beauty and interest enough in these great sandstone canyons and pine and juniper-clad hills to compensate for the long hours in the saddle and nights in a sleeping bag on the ground.

The story of this trip will be written for *Desert* readers later. Just now I am thinking of some of the interesting people and places visited along the 650-mile motor trip from Palm Desert, California, to Monticello. We came by the most direct route, which approximates a diagonal line drawn from the southwest to the northeast corner of the Great American Desert.

We drove over U.S. Highway 60 to Aguila, Arizona, thence north to mile-high Prescott, then to Jerome, the old copper camp which is slowly dying because the ore bodies are running out. At Flagstaff we were in the great pine forest at the base of San Francisco peaks, then on to the desert again at Cameron and northeast through Tuba City, Kayenta, Monument Valley, Bluff, Blanding, and finally Monticello where the 7000-foot altitude was refreshing indeed for us floor-of-the-desert dwellers.

One of the prettiest natural parks along the route is the Granite Dells, just out of Prescott. Here is a great outcropping of weathered granite boulders heaped in disarray over several hundred acres. Prescott maintains this area as a scenic and recreational park and keeps it clean and orderly.

At Prescott I was told that the members of the Smoki clan already were making preparations for their annual Smoki Snake Ceremonial in mid-August. This ceremonial, not to be confused with the Hopi Snake dances, is staged by the white residents of Prescott. It ranks with the Desert Cavalcade at Calexico, California, as one of the most impressive pageants held annually in the desert country. For reasons known only to the Smoki clansmen their program has not been widely publicized in recent years—but it is worth traveling many miles to see notwithstanding the modesty of its players.

More than one-third of the route to Monticello is unpaved. Some of it is rough, but there is no monotony. These slow dirt and gravel roads give one time to appreciate and enjoy the scenic beauty of this desert. And after all, when one is on vacation—a real vacation—speed is not important. I suspect that it is good tonic for

60-mile-an-hour humans to have to slow down to 15 miles for a few hours occasionally.

From Cameron to Bluff the route is mostly across the Navajo Indian reservation. Some day it probably will be a paved road, and one of the most popular highways in western United States. But just now the Indians need many things more than roads for white travelers. Traders along the way told me that travel over this route is increasing every year—but 50 cars a day is still heavy travel in this region.

Despite the slow roads and long spans between service stations, cars seem to get through this country with little difficulty. We met only one car parked beside the road in trouble. When I stopped I recognized the occupants as two old friends of the Indian country, Joe Lee and "Shine" Smith. They merely had a vapor lock and were waiting for their motor to cool. Probably there are no two men on earth better qualified to take care of themselves in the Indian country than Lee and Smith.

Joe was born and grew up in this region, and "Shine" came to the Navajo reservation as a missionary many years ago and is known to every trader and nearly every Indian on the reservation. Originally he was in the service of one of the Protestant churches, but for many years he has been a sort of free lance missionary giving practical assistance to Indians and whites whenever and wherever they are in trouble.

When Cyria and I met him along the road between Tuba City and Kayenta he and Joe were on their way to a Navajo sing in Long Valley to pass out several boxes of clothing which had been sent to Smith to distribute among the Indians.

"Shine" is a nickname the Indians gave him many years ago when he first came to the reservation and tried to teach his Indian class to sing one of the gospel songs in which the last syllable of the word "sunshine" is given much emphasis.

According to one of the legends in connection with his long service on the reservation, his church crossed him off the payroll when he learned to speak Navajo and discovered that there were virtues in the Navajo no less than in the Christian religion—and then began teaching a religion which combined the best from both faiths. This was too unorthodox for the home missionary office.

So, without aid from any organized church, "Shine" goes about doing good. The Indians love him and the traders respect him for his religion is service to all.

We stopped over a day in Monument Valley with Harry Goulding and his wife Mike. Everyone who has traveled the Indian country knows Mike and Harry. They came to the reservation many years ago to run cattle and open a

trading post. They found a small spring at the base of one of Monument Valley's great monoliths, and built their post of native stone. From the veranda of their comfortable living quarters above the store they can look across unoccupied country to the dim outlines of the Henry mountains 125 miles away. They have the biggest front yard in America.

Harry and Mike have grown rich there—but not in money. They are too generous to accumulate a fortune in property. Their wealth is the friendships they have gained over the years—the travelers who go to this remote spot in the American desert, and more particularly the Navajo who make this valley their home.

To the Navajo Harry is a Big Brother to whom they can and do take every problem. He hauls water to their sings, feeds them when they are hungry. The nearest hospital is 100 miles away and he and Mike frequently are called upon to give what emergency aid they can to the sick.

Plans have been discussed for many years to make Monument Valley a National Park. Probably it will be done eventually under a program which will not disturb the grazing and homestead rights of the Indians. In the meantime Harry is a sort of unofficial custodian of the valley. He built most of the roads originally, and keeps a protective eye on the 2400 square miles where he and Mike and their staff at the trading post and hostelry are the only white dwellers.

Many years ago Harry and Mike decided that one of the best ways of improving the lot of the Navajo would be to broadcast what information they could about the actual conditions under which the Indians are living.

Harry was a cowboy, with neither facilities nor rating as a press agent. Nor did they have any communications lines to the outside world. To overcome these handicaps, they decided on another approach—a long range program that only within the last three or four years has begun to show results.

Their plan was to break down the prejudice of the Indians against cameras and pictures. First they had to gain the confidence of their Navajo neighbors. But over the years they have accomplished what they undertook to do.

Today, photographers from all over the world go to Harry Goulding when they want Navajo pictures. Monument Valley Navajos are probably the most photographed Indians in North America.

This program has brought benefits to the Indians in two directions. Every photographer leaves a few dollars to buy groceries for the Navajos, and because of the cooperative attitude of Harry Goulding and the Indians, and the fine natural setting of Monument Valley, the moving picture companies are going there more and more on location for major films. One company distributed \$62,000 in payroll money among the Monument Valley Navajo Indians during the filming of one picture.

Twentieth Century Fox and Argus have erected two permanent sets here, and after using them for the pictures for which they were built, deeded them to the Indians who will derive royalties from future use—the money to go into the Navajo tribal fund.

Another important but less tangible benefit is that through pictures taken in Monument Valley, American newspaper and magazine readers have become better acquainted with the actual conditions under which the Indians are living, and more interested in obtaining schools and hospitals and roads for them.

With Harry Goulding we attended a sing being held for a woman who was suffering from an ailment which modern medical science might cure very quickly. She probably would go to a hospital if one were available. But she could not leave her family of children to make the long journey to Tuba City or Shiprock, so she spent hours going through a ritual which would be a hard ordeal for a person in good health.

Goulding is hoping that out of the funds now being voted by congress, money will at least be available to provide ambulance service for his Monument Valley friends.

Harry does not criticise the Indian Service. He feels that too much money is spent on red tape—but the blame for that goes higher than the Indian bureau.

Knowing that the Navajo Indians had once killed two prospectors who came onto their lands to develop a silver deposit said to have been located near Monument Valley, I was interested in learning their attitude toward the carnotite miners who are now working several claims on the reservation.

Harry Goulding told me that the Indians not only have sanctioned the mining of uranium ores on their lands, but had actually discovered and reported two deposits.

Many of the Navajos had brothers and sons in the war, Goulding explained, and when, during the war days, they were told this ore was necessary to help win a victory and bring their kinsmen back, they accepted this explanation and gave immediate sanction to mining on tribal lands.

From other sources I have learned that the Indians' confidence in Harry Goulding had much to do with their decision. The Navajo Tribal Council receives a royalty on all uranium ores mined on reservation lands.

Leaving Monument Valley we continued our journey to Mexican Hat. Norman Nevills was on the Colorado River—his seventh trip through Grand Canyon—but we stopped for a short visit with his mother who operates the Mexican Hat lodge, then started over the roughest roads along the entire route to Bluff where Father Liebler has been doing a valiant mission the last six years in providing aid and schooling for the Navajo children living along the San Juan river at that point. Indicating the interest Indians are taking in education, the padre said that four generations of one Navajo family attended classes during the past year.





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